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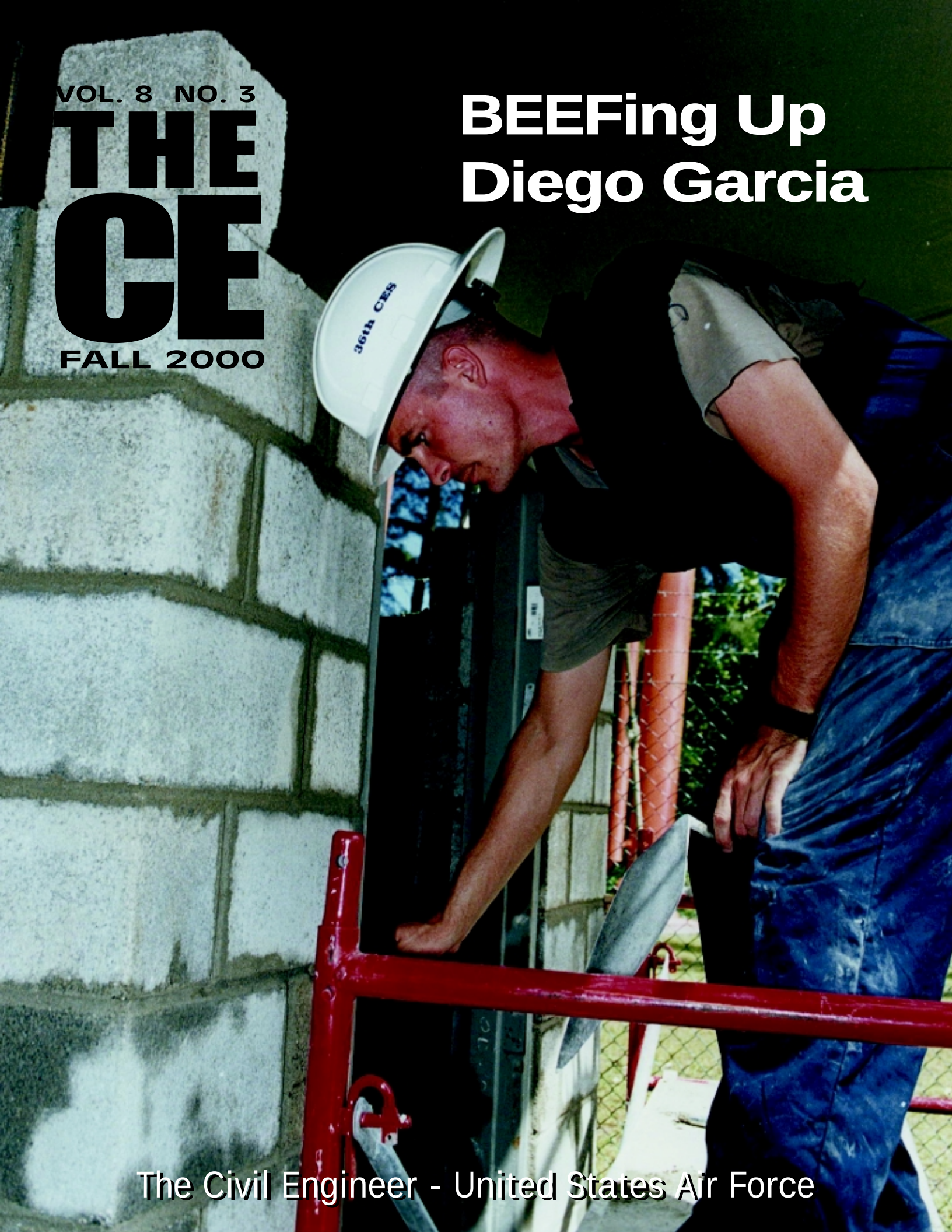
BEEFing Up Diego Garcia



The Civil Engineer - United States Air Force

FROM THE TOP

We're All On the Same Team

Maj Gen Earnest O. Robbins II
The Air Force Civil Engineer

This edition of *The CE* magazine includes four interviews with my counterparts in the U.S. Army, Navy, Marines and Coast Guard. A common theme you'll notice is that the other services' civil engineers are facing many of the same challenges we are — housing, utilities privatization, force protection and readiness. It's also obvious that we share a common goal — service to our nation.

To that end, jointness is crucial. It ties the services' unique capabilities together. Our challenge is to bring them together effectively. This is where joint training comes into play. Through joint training and education, we gain a better perspective of each other's engineering strengths and missions.

Some of our most valuable joint training comes in the form of humanitarian and civic assistance exercises. We've participated in U.S. Southern Command's New Horizons exercises for several years now. This summer's projects included Air Force and Marine civil engineers constructing a school, community center and barracks in Grenada; while in Jamaica, Air Force civil engineers constructed two buildings and did beddown for the U.S. Navy Seabees, who were there to drill water wells.

On the other side of the world, Air National Guard civil engineers worked with Marine Reserve combat engineers, active duty and Reserve Navy Seabees, and Macedonian military engineers to build two medical clinics, two schools and a community center in Macedonia for Cornerstone 2000-3, a U.S. European Command humanitarian exercise. New Horizons and Cornerstone are excellent examples of the positive role the U.S. military can play in other countries while achieving comprehensive training in a joint environment.

Interservice activities are also changing the way we do business. Experience has shown that we can effectively lower costs by consolidating initial skills training and standardizing, when possible, equipment and operating techniques. Airmen, Marines, sailors and soldiers train side-by-side in seven civil engineer joint apprentice courses at Sheppard Air Force Base, Texas and detachments at Fort Leonard Wood, Mo.; Construction Battalion Center, Gulfport, Miss.; Eglin AFB, Fla.; and Indian Head Naval Facility, Md. By combining similar training programs, we are saving money and preparing students to operate in the joint world.

Another area where we're implementing standardization is in design and construction technical criteria. The Tri-Service Committee on Unified Design Guidance was established by the services to direct the project. They're about halfway there, and when finished, we'll have internet access to uniform criteria that are current with technological advances and industry standards.

In the environmental arena, the Interservice Environmental Education Review Board (ISEERB) is working to ensure Defense Department components have the most cost-effective and efficient environmental education and training. The board reviews the content of environmental courses and endorses them if they are suitable for interservice use. The number of approved courses available continues to expand.

These are just some of the areas where we are nurturing jointness through interservice cooperation. It's smart business and critical to ensuring we are prepared for the conflicts of the future. In the words of U.S. Army General Colin L. Powell, "We train as a team … fight as a team … and win as a team."

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SSgt Thomas Phillips, 36th CES, works on a block wall at the land mobile radio repeater facility he helped construct at the Naval Support Facility on Diego Garcia. *(Photo by John Castiglia, DG21 Photographer)*

THE CE

The U.S. Air Force Civil Engineer

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The Civil Engineer
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Major General Milton Hunter is the Deputy Commanding General for Military Programs, U.S. Army Corps of Engineers. The Military Programs mission is "to provide engineering, construction and environmental management services for the Army, Air Force and other assigned U.S. Government agencies and foreign governments." In this interview with The CE *magazine, General Hunter discusses what the Corps brings to the table when …*

Maj Gen Milton Hunter

Working Solutions in a Joint Environment

The CE: The services are looking at ways to improve members' quality of life and, along with it, recruiting, retention and readiness. Which quality of life programs has the Army made top priority and what role do your civil engineers play in making them happen?

Maj Gen Milton Hunter: The major quality of life programs we are supporting are design and construction of single soldier barracks and family housing. We are using a couple of programs to do it. One is our normal MILCON [military construction] program for what we call "whole barracks renewal," where we're building unit-sized barracks complexes. We're doing this at a number of our installations to meet the "1 plus 1" standard adopted by the Department of Defense.

In the family housing arena, we're looking at ways to improve homes quicker than we can through the normal MILCON process. There are a range of quotes out there, but basically, using MILCON only we're looking at a period of about 137 years to revitalize the Army's family housing inventory. So we've taken on privatization, not to negate the normal process of acquiring family housing, but as a tool to supplement the MILCON process so that we can reduce our inadequate or substandard housing sooner. The intent is to complete the family housing program somewhere in the 2010 to 2015 time frame. For barracks we're talking about 2008 to 2010 worldwide.

Our first installation-wide family housing privatization contract was at Fort Carson, Colo., where we're building 840 new family housing units and revitalizing 1,623 existing units. This will accommodate the deficit of soldiers who live off post. The contract was awarded in the fall of last year, and by Christmas time they were moving in more than 200 families. The contractor has a five-year window to do this total revitalization and new construction. It's been a great success so far, from the reports we've gotten.

We have three other candidate installations for family housing privatization. Fort Hood, Texas, which should be the next awarded, followed by Fort Lewis, Wash., and Fort Meade, Md.

We're also trying to improve the industrial facilities at our installations, where we work, in addition to where we live and play. So, a lot of good things have happened over the last few years.

The CE: Joint training efforts can potentially save millions in facility construction costs and yield valuable training opportunities for all services. Where have you seen success with joint training programs and joint exercises?

General Hunter: Fort McClellan, Ala., closed under the last round of base closures. This was the home of the chemical and military police schools. These schools joined forces at our engineer school at Fort Leonard Wood, Mo., and created the Maneuver Support Center. Here, Army, Air Force, Navy and Marine students receive some common core training before specializing in whatever their branch affiliation is, engineer or military police or chemical.

We do joint training at several other sites. At Sheppard Air Force Base, Texas, for example, we train plumbers and electricians. At Gulfport, Miss., carpentry and masonry, and at Fort Belvoir, Va., topographic engineering. Bringing the services together to train reduces the number of facilities necessary where you have common skills required for

engineers. It has been very successful for a number of years.

In terms of joint exercises, we're seeing a pattern of more of them. Last fall I participated with the other services in what's called a focused logistics war game. What we found was our commonality, or our lack of commonality, on certain types of equipment. I think, over time, the joint training efforts at the various schools will solve that.

The CE: In what types of research and development programs are Army civil engineers working closely with the other services to develop new technology?

General Hunter: We're doing several things with new technology. We have tri-service organizations in research and development, for example the Joint Engineer Management panel for the Air Force, the Navy and the Army. Our research and development programs in civil engineering and environmental technologies are closely coordinated with the other services and federal agencies beyond the Department of Defense.

There's a Presidential directive entitled Critical Infrastructure Protection that looks at force protection and mobility assessments of critical infrastructure, not only in the military, but in public works and national infrastructure. A joint agency, which includes the Department of Defense and other federal agencies, is looking at what we can do to reduce our vulnerability to the terrorist threats and activities that we know go on today in our world. Army engineers are involved in the public works portion of this critical infrastructure protection directive. They're doing assessments and working solutions in a joint environment.

Joint research and development investments maximize returns and minimize duplication. An example is conventional facilities acquisition and maintenance. While the Navy is focused on harbor and coastal facilities, the Air Force is focused on fire fighting. So we look at those jointly to decide how to best use investment dollars to provide a common solution for all the services.

The CE: The Army Corps of Engineers serves a variety of customers — from federal agencies to various state and local governments to foreign governments and organizations. What are the challenges in doing so?

General Hunter: The greatest challenge is meeting all the customers' expectations. Part of that is helping the customer shape and define their requirements. It can be difficult to get the right players together to define the need.

We have liaisons in place in some agencies who assist in this. The liaison is a great asset because they're able to work from within the agency, with their directors of public works, for example, to help define the need and execute a project or program to meet that need.

We've done this particularly in terms of energy. DoD had a significant energy bill in fiscal year 97 when I came to the program. I think the bill that year was about $5 billion. Facilities took up about $2 billion of that. So what we have initiated throughout DoD, and clearly in the Army, is leveraging private capital in the form of Energy Savings Performance Contracts, where a contractor comes in and develops a proposal on how they can reduce the energy bill. Their payment is the savings from some baseline. The contractor uses their private capital to put in their energy-saving devices. They get paid out of savings — no savings, no profit. It's been a very successful program so far, so much so that we've extended it more and more.

That's the kind of thing we bring to the table. I call it the technical expertise toolbox. Another example is developing master plans for installations so they can plan better to provide the right kinds of facilities in the right places on the installation.

Suppose you're sitting as commander of an installation and there's a new requirement coming there, maybe a training center for a new generation of equipment or weapons, so you have to plan for it. What you want to do is make sure that you're siting the facilities properly. We haven't always done that very successfully.

We can develop a full-blown master plan using commercial off-the-shelf software integrated with geographic information systems to plot the installation, sort of a real-time method of looking at it. This is a way to really develop military communities — where we are siting the working areas, the play areas and the living areas.

The CE: Do you see any changes in Military Programs' business areas in the near future?

General Hunter: The Army's transforming to a lighter, more lethal, more deployable force. From our perspective, that's certainly going to have an installation/infrastructure impact. Right now we're looking at sort of a gap analysis — what is going to be the footprint required and how we will manage it.

On the business side, we're looking at national infrastructure requirements — school systems, highway systems — those areas where we can help other federal agencies such as the Transportation Department and Education Department.

From the schools' perspective, they are in dire need. What we've found, at least in the initial stages in many schools, is they do not have the engineering expertise in their organization needed to develop or shape programs.

Many of those who live in the National Capitol Region will know the story behind the beleaguered schools here trying to get open a couple years ago. We were asked by the superintendent to step in and help them out. We went in and opened the schools on time and helped them shape a revitalization program. We would like to be the launch pad to get the private sector moving on this around the country.

Rear Admiral Louis M. Smith is Commander, Naval Facilities Engineering Command (NAVFAC) and the Navy's Chief of Civil Engineers. NAVFAC manages the planning, design and construction of facilities for U.S. Navy activities around the world. As Chief of Civil Engineers, Admiral Smith is the community manager of the Navy's nearly 2,000 active duty and reserve Civil Engineer Corps officers and 17,000 active duty and reserve enlisted Seabees, the Naval Construction Force. In this interview with The CE *magazine, he discusses Navy civil engineering, how it relates to that of the other services and how we all have a role to play as …*

Rear Adm Louis M. Smith

Part of the Team

The CE: The Naval Construction Force Seabees are tasked with providing some of the same types of support as Air Force RED HORSE teams. What are the main differences, operationally, between Air Force and Navy construction forces?

Rear Adm Louis M. Smith: Everybody has a role to play in today's military, and that role is different among engineers in the Army, the Navy and the Air Force. If you look at just Seabees and RED HORSE, they are both meant to deploy, and they have similar construction capabilities.

Seabees are tailored toward vertical construction, heavy construction and waterfront construction. RED HORSE, I believe, is tailored toward heavy repair, horizontal construction, rapid runway repair, and things of that nature.

This is actually a plus because the two teams complement each other when we go into contingency situations. It reflects, again, on the role the individual services have to play in defending the nation.

If you look at our advance planning, our Seabees are in a forward deployed status, what we call a "seven and seven," seven months out — seven months back. When they deploy, they have their own galleys and berthing with them. They are meant to be able to operate without any outside support.

When we look at tasking them, we look at our OPLANS [operations plans] and try to have an OPORDER [operation order] written about a year in advance, before a battalion is deployed, so we know how to stage material.

Part of that process, on the contingency side, is by the end of 2000 we will have three maritime prepositioned ships, outfitted with a Seabee battalion worth of allowance (construction materials and construction equipment), forward deployed to sites around the world where we can get to them quickly in the event of a contingency.

It's an intricate process, but we keep getting better as we learn from previous military operations other than war how to be better prepared for the next one.

The CE: How do the services' different civil engineer capabilities come into play during joint operations such as Bosnia and Kosovo, where they find themselves working closely together?

Admiral Smith: The Seabees were established in 1942 to work directly with the Marine Corps in wartime situations, and that's still the thrust of our wartime tasking. So to that end, we work more with the Marine Corps. Normally, when the Marines pull out we, the Navy Seabees, pull out too.

But there have been operations in places like Kosovo where we were in direct support of the U.S. Army for a very long time in a joint mission. In Kosovo and Bosnia, the Seabees and RED HORSE were basically in the same locations, but doing different things. It was like gears coming together — there were things we could do that other units couldn't, and there were things they could do that we couldn't. It was really a pretty good fit once we got out there and worked together.

We are going to see more of this as we get more and more involved in these types of operations around the world. It goes back to what I said before about the tailored nature of what we do.

Joint planning, I think, is very much the wave of the future. You can work at the planning side, but unless you are willing to go out and actually try to make it happen in field conditions, you are never going to get anywhere. You have to actually see what happens when you go out and do it.

Again, it's not just about the Navy, it's about the Navy, Marine Corps, Army and Air Force. We all have a role to play on the team, and we are all doing different things for different people. And we complement each other. That's a real plus for the jointness of the engineer role.

The CE: Air Force civil engineering is benefiting from the Defense Department's move toward a "Total Force," integrating Reserve, Guard, civilians and contractors into traditionally active duty roles. What kind of success is Navy civil engineering seeing from this increased reliance on reserve components?

Admiral Smith: We are really integrating our active and Reserves, especially within the Civil Engineer Corps, within NAVFAC and within our Seabees.

If you were to look at my organization here at headquarters, for example, my contingency engineering group is run by a Civil Engineer Corps reserve Flag officer. If you look at our Seabee battalions in the field, at every level they are thoroughly integrated with their reserve counterparts and with the reserve Seabee battalions.

If you look at our engineering field divisions, they have virtual shadow organizations of reservists who are on call, and are called on quite often, not just for contingencies but also for specialized engineering assignments or to take the place of active duty officers. I think it's working well.

As a matter of fact, the one thing I would say has changed dramatically in my 30 years in the Navy has been the role of reservists, or what I would call the everyday role of reservists, being called up and worked in different functional areas. The days, back when I was a young officer, when we would just see them for two weeks a year are long gone. Now they are integrated in what we do on a monthly and daily basis.

The CE: What systems are being addressed under the Navy Utilities Privatization Program and what progress are you seeing this year?

Admiral Smith: We are pushing utilities privatization just like everybody else is. I'm a fan of privatization because I'm not sure there is anything, to borrow a phrase from another venue, "inherently governmental," in providing electricity and gas and water to our ships and to our shore stations.

We have more than 1,000 different systems in the Navy to look at and more than 700 of those are under active privatization action right now. In some cases we are still doing the preliminary studies. In a lot of cases the RFP [request for proposal] is out on the street. In others, we are evaluating the RFPs, and in some we have already privatized those locations.

Privatizing is tough because it is very complex and multi-dimensional, but we are making a lot of progress on it.

The CE: What are NAVFAC's main goals for the next decade?

Admiral Smith: One thing I am very pleased with is our planning. Like many organizations about 10 to 15 years ago, we started getting into strategic planning hot and heavy. It was kind of an isolated effort at first, but what we have learned over the years is that it can't be an isolated effort. You can't have your mission statement and your goals on your strategic plan separate from what you do every day, day-in and day-out.

What we are doing now with our strategic plan is linking it to our three-year business plans and to our annual budget. For the first time, the way we distribute funds and work hours to our field activities to accomplish our job has been tied back into the goals in our strategic plan.

Now there's a direct linkage from the long-term goals of the organization to the work we do every day within the command. This is a positive, and it segues into our relationships with all our clients, certainly not the least of which is the United States Air Force.

The Air Force is an important client to us — they are part of the team. I confess I have a soft spot in my heart for the Air Force, having spent two years sitting next to then-Captain Earnie Robbins at Offutt Air Force Base in Nebraska when I was a Navy lieutenant. He was a good fellow then, and he is a good fellow now.

I have always thought, and General Robbins and I have discussed this many times, that the Air Force model for a civil engineer is very similar to the Navy model in terms of career progression and the kinds of jobs you want to get. Of course, you are line officers in the Air Force, and we are staff corps officers in the Navy, but I think from a career point of view the things you want to do and the things you value are very similar.

I have always had an appreciation for the Air Force and the Air Force mission. Again, there is a role for everybody to play within the Department of Defense, and the Air Force plays theirs superbly.

Editor's Note: Admiral Smith was succeeded by Rear Adm Michael R. Johnson as Commander, Naval Facilities Engineering Command and Chief of Civil Engineers at a change of command and retirement ceremony October 20.

As the Assistant Deputy Chief of Staff for Installations and Logistics (Facilities), Headquarters Marine Corps, Major General Harold Mashburn, Jr., is responsible for all programs associated with the management of Marine Corps installations including construction; repair and maintenance; housing; garrison equipment; food service/subsistence; land use management including real estate, natural resources conservation and environmental protection; and traffic management. In this interview with The CE, *General Mashburn discusses the Marine Corps' new emphasis on …*

Maj Gen Harold Mashburn, Jr.

Sustaining Installations

The CE: A critical component of attracting and retaining personnel is quality of life, especially the houses and barracks we provide them and their families. What programs does the Marine Corps have in place to address quality of life issues?

Maj Gen Harold Mashburn, Jr.: First, some background. General James L. Jones, Commandant of the Marine Corps, has placed a new emphasis on installations. As soon as he took office in July, General Jones established our bases and stations as the "fifth element" of the Marine Air-Ground Task Force, or MAGTF [a task organization of Marine operating forces — division, aircraft wing and service support group — under a single command].

The first four elements of the MAGTF were always known: command, aviation combat, ground combat and combat service support. General Jones added installations, saying they play critical roles in the lives of our Marines — they are the "platforms" from which we deploy our forces, and they support the quality of life of our Marines and their families.

In terms of our housing programs, we are implementing plans to put one-third to one-half of our military construction budget into bachelor enlisted quarters every year to meet the Defense Department mandate to get out of inadequate enlisted quarters, which means gang heads. We've programmed the money to do that by 2005.

The Marine Corps is very different from the other services in that 68 percent of our Marines are first-term. Almost 50 percent are 21 years old or younger. Throughout our recruit training we have a transformation process that stresses unit cohesion. That process continues during a sustainment phase at their first unit. Therefore, we received a waiver not to consider single-person rooms, which were mandated. We are going two people per room with one head. That's simply for cohesion, understanding how young our Marines are and the fact that they need to bond.

Defense Planning Guidance mandates that by 2010 we've got to take care of all inadequate housing. We're using all avenues to do this, including, right now, four initiatives for privatization. These public-private ventures, or PPVs, are critical to meeting the 2010 mandate. There are a few instances where we think we can also use PPVs for bachelor quarters.

Of course quality of life is more than where you live. Where you work is a critical part of quality of life. It makes a difference if your office is air conditioned, if the lighting is proper, if you have the right equipment to do your job — so we're looking at that aspect also. Quality of life today means retention. Retention is critical.

The CE: A serious challenge to all the services is how to re-capitalize and modernize while maintaining readiness within projected budgets. How are you meeting that challenge and where do competitive sourcing and privatization fall into that equation?

General Mashburn: We annually publish a book, called *Concepts and Issues*, that talks about infrastructure requirements and acknowledges, as we did during our testimony before Congress at this year's hearings, that we have mortgaged our infrastructure for current readiness and modernization. And we've mortgaged modernization for readiness. The bill payer has been infrastructure, which

includes installations. From every service you're going to get the same story.

In the Marine Corps, civil engineering is not what we call a core competency. Aboard our bases, like all the other services, we're looking at competitive sourcing and privatization. The number one thing on the chopping block every time is facilities management because it isn't a core competency.

We're learning by applying activity-based costing and activity-based management that the way we're doing things now is not efficient. Maybe effective, but it could be more efficient. We are actively pursuing competitive sourcing and privatization primarily because we know we're not as efficient as we could be. We want to return Marines that are aboard the bases to the operating forces. Bottom line.

It's a painful process because we're also looking at outsourcing utilities services. So our civilian Marines, a great work force, are confused at this time since they are exposed to the process twice — outsourcing through the A-76 process and privatization of utility plants. But they shouldn't feel threatened. It's going to make the Marine Corps better. It's going to give us more credibility when we go to Congress for money for our infrastructure.

Like all the other services, the question deals with the priority of readiness, modernization and infrastructure. The priorities will stay in that order.

The CE: One way the Department of Defense is saving resources is through cost-effective environmental management. Which programs are experiencing success at Marine installations?

General Mashburn: The Department of Defense is the best steward of the environment in the United States. For good reasons, we understand the importance of having public support for our mission and our budget.

In the Marine Corps, we're emphasizing pollution prevention through education and working closely with local and national agencies. Hazardous material is a good example. Getting rid of it costs a fortune, so we're looking for better ways to handle it. We're consolidating. Each of the small units at a base used to have perhaps a hundred different little places that handled hazardous material. Of course if you're a Marine, you're going to have a stockpile somewhere, because you know someone's going to ask for it and you're going to need it. Well, it all has a shelf life. So you spend money to buy it, you use a little bit of it, when it reaches the end of its shelf life you've got to pay to dispose of it, and you've got to buy more of it. So by centralizing, having someone who knows the usage, has the ability to replenish within 24 to 48 hours and can redistribute items before they reach the end of their shelf life, we are realizing so much savings it's amazing.

Environmentally a major concern now is encroachment. Encroachment of our training ranges, of our bases. A good example is if you look from Los Angeles to San Diego there are two green spaces. One is called Camp Pendleton and one is called Miramar. All the critical habitat is there because all of the endangered species migrate to those green spaces. It's a day-to-day battle for those installation commanders and for the headquarters to make leadership understand the impact of regulations on our training and our readiness.

We have good plans in place to protect endangered species, so it's become an education process. There are some constraints that we can't have placed on us, because if so training will be artificial and we'll be putting our soldiers, sailors, airmen and Marines at risk when they deploy. That's not what we want to do. Everyone has to work together.

The CE: What role do Marine support engineers play in joint and combined exercises?

General Mashburn: When the Marine Corps participates in any type of exercise they participate as a MAGTF, and our support engineer elements are a critical part of that. Our forward deployed Marine Expeditionary Units participate not only in joint exercises but in joint combined exercises with foreign nations.

Another important contribution of our engineers and those of the other services is nation building — when our engineers, along with our medical and dental personnel, deploy independently and not as part of a MAGTF. They work with the local population and government plus the nation's military. While they're there, they complete construction projects such as community buildings, schools and roads. Engineers during this time of nation building are critical, and they do a fantastic job.

The CE: As the incoming Commandant of the Industrial College of the Armed Forces (ICAF), are you satisfied that the current opportunities for joint training and career broadening are sufficient to prepare sailors, soldiers, airmen and Marines to work together in the field?

General Mashburn: Jointness is critical. I think everyone understands that no one service is going to fight any conflict by itself. It's going to be joint. We need each other — we have complementary capabilities.

Career broadening is difficult today. What I have seen in the past 10 years since I graduated from ICAF is our young officers feel they must hold so many positions throughout each rank — a company command, an operational position on a staff, an intermediate level school, a command as a lieutenant colonel or an O-5. If they do all that, where's the room in between to participate in the joint aspect?

There are still those who think that going to a joint duty takes them out of the mainstream. It doesn't. Joint duty is career broadening. It enables them to really apply what they know about their service and learn the capabilities of the other services. Understanding that we are all going to be in-theater together, any opportunity that someone has to go to another service school — I would grab it, I really would.

Editor's Note: General Mashburn is now Commandant, Industrial College of the Armed Forces, Fort McNair, Washington DC.

Rear Admiral Ronald F. Silva is the Assistant Commandant for Systems and Chief Engineer, U.S. Coast Guard. Coast Guard civil engineers support more than 40,000 personnel, 230 cutters, 1,400 small boats and 200 aircraft residing on a shore infrastructure of more than 7,000 buildings valued at more than $7 billion. In this interview with The CE *magazine, Admiral Silva discusses new Coast Guard strategies and concepts for …*

Rear Adm Ronald F. Silva

Changing the Focus of Civil Engineering

The CE: What major shore infrastructure challenges are Coast Guard civil engineers facing today?

Rear Adm Ronald F. Silva: We are facing an aging infrastructure that is increasingly expensive to maintain. Much of our shore inventory is inherited. Our larger bases are generally hand-me-downs from other services, old Navy bases or old Army bases. They were good deals when we got them because they were free, but what we got were generally older facilities that to varying degrees fit our mission requirements.

Our maintenance and repair work backlog is over $700 million. Since we generally receive almost $100 million a year in funding, that's at least a seven-year backlog in projects. So we are short on our maintenance accounts.

We're also short on our re-capitalization. We generally get about $50 to $70 million a year in our Acquisition, Construction and Improvement account, which is like MILCON [military construction] in the Department of Defense [the Coast Guard is part of the Department of Transportation]. At this rate, it will take about 125 years to re-capitalize the plant based on its present value and the amount of funding we're getting. At an average building age of 38 years, that's not good.

We feel like we have too much footprint, too much infrastructure. We haven't had the benefit of any BRAC [base realignment and closure] legislation in the Coast Guard as DoD services have. We had a streamlining project back in 1995-96 where we were able to close our largest base on Governor's Island, N.Y. I was the last base commander at Governor's Island, and in charge of the closure. It's really hard, with all the political interest involved, to close Coast Guard bases or stations, but we clearly need to look at our opportunities.

We're also looking at right-sizing our housing by divesting what we don't need, as well as at privatization opportunities. We haven't done any privatizing yet — we're kind of waiting for the DoD services to figure out how to do it successfully. We have used new legislation to sell housing units and then used the proceeds to acquire housing units in other areas. We have a leased housing program as well, where rather than acquire or build government housing we lease houses in the community. The recent increases in the BAH [basic allowance for housing] have taken up some of the slack.

The CE: The "Team Coast Guard" vision has basically done away with traditional reserve structure, so that the Coast Guard Reserve is now largely comprised of augmentees. How has this change affected your civil engineering units?

Admiral Silva: When we refer to Team Coast Guard, we refer to all of the Coast Guard — officer, enlisted, civilian, Reserves and auxiliarists. The Coast Guard Reserve used to be a program where reserve units did their own thing, somewhat separate from the regular Coast Guard. We changed to a concept where they augment the Coast Guard stations and offices. They still do a weekend or maybe two days during the week, depending on their schedule, but they're coming in to a station and being tasked with the same work as civilian and active duty members, as opposed to meeting as a Reserve unit.

This has worked out well for our civil engineering units, where reservists are helping out with inspections, surveys and design.

The CE: What opportunities do Coast Guard civil engineers

have to train with civil engineers from other services?

Admiral Silva: All total we have 140 or so civil engineering officers in the Coast Guard. So it's really hard to have schools for that few people. Since we don't have an extensive amount of training available for civil engineering officers, we utilize the other services' programs. This year, for example, we're sending 15 officers to five different Navy courses and 46 officers to 30 different Army courses.

We have about 100 civil engineer billets for officers, and probably another 40 civil engineers that are not in civil engineering billets. The Coast Guard is a little different than the Navy and Army, and maybe not so much from the Air Force, in that we're all Coast Guard officers — we don't have specialty corps. We rotate in and out of civil engineer assignments. We may have a civil engineer at a civil engineering unit whose next assignment may be commanding officer of a Coast Guard cutter.

Occasionally we will have an opportunity for joint training when, for example, the Navy Seabees do a project for us. When I was the 14th District Civil Engineer in Hawaii, we worked with the Seabees to build a Coast Guard LORAN [Long Range Navigation] station on Guam. That was a lot of fun working with them. Not everyone has the opportunity to do that, though. It's just taking advantage of schedules and so on.

The CE: How does the Coast Guard compete with civilian corporations and the other services to recruit graduating engineers?

Admiral Silva: The Coast Guard Academy is the main source of our civil engineer officers. The remainder are from officer candidate school and the direct commission program.

I go to the Academy and make the pitch to cadets to sign up for the engineering majors, whether it's electronics or naval engineering or civil engineering. Civil engineering has been one of the more popular programs at the Academy, so there's generally not a problem getting enough cadets to sign up for that major.

Our civil engineering units are 80 percent staffed with dedicated, professional Coast Guard civilians. We hire them from a variety of sources, including the other services.

The CE: What major changes do you see on the horizon for Coast Guard civil engineering?

Admiral Silva: Two things — one tactical and one strategic. From a funding perspective, we've put in a budget request for fiscal year 2002 for what we call "restoring our funding base for readiness." Maintenance funding is a large contributor to our Coast Guard readiness. We're working very hard to restore it to a reasonable level. Right now, for civil engineering, we're at a little less than $100 million, and we need another $41 million. So that's a pretty significant increase.

From a cultural perspective, we are retooling our civil engineering program to implement a new strategic initiative, Shore Facilities Capital Asset Management (SFCAM).

SFCAM is a combination of new strategies and concepts for changing the focus of civil engineering from "we'll build it, we'll fix it" to managing our $7 billion worth of shore plant as capital assets.

One of SFCAM's guiding principles is to ensure the best value shore capability for the Coast Guard. This involves balancing factors such as ease of construction and maintenance, environmental stewardship, energy management, flexibility for future requirements and ease of disposal.

Other principles are to match shore capabilities to mission, keep a life cycle and total ownership cost perspective, encourage collaboration and feedback, use information technology effectively and foster professional development.

We've already seen success using these principles. For example, we had two very old air stations, one in Brooklyn, N.Y., and one in Cape May, N.J. Both were in need of a lot of re-capitalization and renovation. The solution was to consolidate operations in a new location midway between the two. We replaced two old facilities that had huge backlogs and huge maintenance requirements with one brand new, right-sized facility. That was clearly a better solution. The old mentality would have been, we've got two air stations, we need to replace them in kind, or fix them in kind.

The other example I have is a station called Ashtabula in the Ninth District up in the Great Lakes area. It was located next to where ships unloaded coal and there were stockpiles everywhere. There was coal dust everywhere so it was always dirty, and the station was four times larger than it needed to be because the crew had been reduced. So we built a right-sized facility away from the coal. For less than a million dollars, we had a brand new station, very functional, low maintenance and right-sized for the crew. The payback was very good considering the high maintenance costs of the old facility and the reduced workload on the crew.

The General Services Administration is pushing for similar asset management principles. Their future legislation for federal property regulations will incorporate many of these principles.

The reality is budgets are very tight, not only for the Coast Guard but for all of federal government. SFCAM is meant to deal with a flat line or decremental budget scenario — managing our portfolio of shore capital assets under the scenario that we're not going to get more money. We clearly don't have enough money to re-capitalize the shore plant that we have now and the prospects of getting more money are not good. We clearly don't have enough money to do maintenance on the facilities that we have. We need to right-size our shore plant and make it newer. Our SFCAM initiative will help us do that.

International Team Builds New Rescue Technician Course

by TSgt Steven J. Foster
312th TRS

A team of fire service instructors from the Manitoba Canada Emergency Services College and the Department of Defense (DoD) Fire Academy, located at Goodfellow Air Force Base, Texas, came together recently to develop a new Rescue Technician course. The course is compliant with the new National Fire Protection Association (NFPA) 1006 Standard for Rescue Technician Professional qualifications.

Creation of this course marks the first time two nations have joined forces to develop a fire rescue training program for accreditation by the International Fire Service Accreditation Congress (IFSAC).

IFSAC is a self-governing, peer-driven, international community of fire service professionals who approve both fire service certification programs and higher education, fire-related degree programs. Accreditation is necessary as fire service agencies are being held increasingly responsible for their actions. The value of accreditation is that it clearly establishes accountability for performance.

(Photos this page) **A team of U.S. and Canadian fire service instructors trained together in high line operations while developing a fire rescue training program at Louis F. Garland Fire Academy, Goodfellow AFB, Texas.** ***(Photos courtesy 312 TRS)***

Leading the 120-day project was TSgt Eric Dehn, a 15-year fire service veteran who was the Superintendent of the DoD Fire Rescue course during this project (he is now attending Officer Training School).

"It is extremely gratifying to be the first in the nation accredited by IFSAC to Rescue Technician. Not just because we were first, but because we had such a superb working relationship with our peers from Canada," said Dehn.

The course is currently set up to provide instruction in Chapters 3 (Job Performance Requirements), 4 (Rope Rescue), 6 (Vehicle and Machinery Rescue) and 7 (Confined Space Rescue) of NFPA Standard 1006. "We may add some additional chapters at a later date, but that is still in the discussion stage," said Dehn. "We are ready to handle the task whenever our higher headquarters gives us the green light."

The plan to put together the international team was hatched during an IFSAC site visit to the Louis F. Garland Fire Academy in January for Fire Officer II and Fire Inspector II accreditation. At the end of the site visit, discussions focused on the upcoming rewrite of the existing rescue course to meet the new NFPA 1006 standard. Doug Popowich, Fire Commissioner for the province of Manitoba, who also serves as Manitoba Emergency Services College Director and IFSAC site team member, graciously offered the assistance of his staff to aid in the project. An international alliance was forged when his offer was accepted by Hugh Pike, chairman of the NFPA 1006 committee and manager of the DoD firefighter certification program, Fire Protection Division, Headquarters Air Force Civil Engineer Support Agency, Tyndall AFB, Fla.

The effort was launched in February 2000 when Dick Harvey and Chris Popowich arrived from Canada, along with MSgt Verne Anderson and SSgts Wes Hudson and Sean

O'Marra from the U.S. Air Forces Europe rescue school.

Communication among the team members was vital to the project's success. According to Dehn, "There were some frank discussions on matters of interpretation and content. But, with any free and open exchange of ideas, there are bound to be some differing views. The result is, we feel we teach the best techniques that suit our needs and are still compliant with the standard."

One significant area that the Canadian contingent helped with was high line operations. "While our personnel had prior training in that area, we felt the Canadians had a greater level of expertise and could really get us up to speed," noted Dehn. To meet that challenge, Stan Allen and Ihor Holowczysky came in from Canada to provide expert instruction.

"I couldn't be more proud of the effort my instructors put forth. I knew my guys were capable of putting together the course, but when we brought the Canadians on board, I knew we would end up with the best product possible and that the accreditation visit would be easier," said Dehn.

This multi-national endeavor would not have been possible without the outstanding support received from HQ AFCESA personnel. Jim Hotell, Chief of Air Force Fire Protection, Hugh Pike and CMSgt Jim Podolske, Air Force fire protection career field manager, formed a vital foundation of support — monetary and technical.

During the 120-day rewrite, the team developed more than 600 computer-based test questions, more than 300 presentation slides, and more than 2,500 pages of lesson plans and study materials. The IFSAC site team arrived May 15 to scrutinize, dissect and analyze every detail of the course material.

The site team's job is to ensure that IFSAC members are in strict compliance with the NFPA standard used for course development. The site team spent two days checking every test question, line item and checklist. After viewing demonstrations of each practical evolution, the evaluators were impressed by the performance they observed and recommended accreditation pending final approval from the IFSAC Board of Governors.

"The credit for this project ultimately goes to my staff and their Canadian counterparts. They were the guys 'bangin it out' every day, and without them the completed project would have never materialized. They worked their tails off and I can't thank them enough for their dedication and hard work," said Dehn.

The first-ever accredited Rescue Technician course started in June in the United States, and the Canadians brought their course online in July.

TSgt Steven Foster is the public affairs representative and course superintendent for the Hazardous Materials Train-the-Trainer Course, 312th Training Squadron, Goodfellow AFB, Texas.

UNIT SPOTLIGHT

Unit Name: 11th Civil Engineer Squadron
Parent Unit: 11th Wing, "The Chief's Own"
Location: Bolling Air Force Base, District of Columbia
Commander: Col Randall J. Thady **Personnel:** 96 military, 206 civilian **Mission:** Operate, maintain and improve Bolling AFB and all other 11th Wing facilities for our worldwide customers, while maintaining optimal contingency and war readiness capabilities.

Unique Requirements: Bolling AFB is located between the Potomac River and Interstate 295, in the southeast corner of Washington D.C. Bolling is a support base, without the usual flightline operations. As part of "The Chief's Own," the 11th CES provides the Chief of Staff and Headquarters Air Force with housing, personnel, communications and ceremonial support.

The highly visible mission of providing ceremonial support to the President, Secretary and Chief requires many hours by 11th CES shop personnel. This includes expert maintenance of two ceremonial lawns, the Tattoo Lawn, which borders the Potomac River, and the Main Lawn, a pristine and quiet reviewing area used for most change of command, welcoming and Sunset Salute cermonies. The 11th CES supports day, night and weekend ceremonies, welcoming distinguished visitors from around the world.

Additional Accomplishments: The 11th CES maintains more than 4 million square feet of facilities, including the Defense Intelligence Agency, 1,346 military family housing units and 39 general officer quarters. The maintenance requirements of the historic GOQs combined with those of the 30- and 40-year old family housing units prompted Bolling to take an aggressive posture in replacing aging family housing. So far, 218 units have been replaced. Another 72 units will be replaced in fiscal year 2000 and 136 in fiscal year 2001. The 11th CES plans to spend more than $100 million over the next 13 years to replace the remaining units. Streets in the new housing areas are being named for Air Force heroes, such as members of the famed Tuskegee Airmen.

The 11th CES is proud to have a large impact with a small footprint. The support it provides to Air Force District Washington, its tenant units and its many visitors often goes unnoticed — proof of the seamless operations it strives for as part of the 11th Wing's "World Class People providing World Class Support."

'One Island, One Team, One Mission'

Prime BEEF Increases Forward-Operating Capabilities on Diego Garcia

by Capt Melinda A. Moss
36th CES

A 24-person Prime BEEF detachment from the 36th Civil Engineer Squadron, Andersen Air Force Base, Guam, deployed to the Navy Support Facility, Diego Garcia, British Indian Ocean Territories, in June to complete facilities construction as part of the Air Force's bomber forward-operating location (FOL) initiative. The Air Force is establishing forward-deployed bomber beddown support at key locations throughout the world and Diego Garcia, a small island in the Indian Ocean, is one of two critical locations in the Asia-Pacific region, according to Air Force officials. The other is Andersen AFB.

Limited man-hours available to the Air Force from the local base operating support (BOS) contract at Diego Garcia meant one thing — using Prime BEEF to do the bomber FOL work.

"This was the only way to execute this fiscal year," explained SMSgt Douglas Papineau, 36th CES Prime BEEF team chief. "The PACAF [Pacific Air Forces] detachment on Diego Garcia is only allotted a limited amount of work from the Navy's base operating support contract on the island, and budget timelines for the bomber FOL initiative required immediate project execution," Papineau continued. "Using troop labor was the solution."

"Headquarters PACAF ensured that Navy command was well-informed of the goals and objectives of the Air Force bomber FOL, which smoothed out the approval processes both on and off the island," said Papineau.

The team constructed a land mobile radio repeater facility, supply and maintenance secure storage rooms and a generator pad; tested grounding points; and repaired the tent city electrical system during the 45-day deployment.

"These items each play an important role in making Diego Garcia capable as a bomber forward-operating location," said Papineau. The bomber FOL is an instrumental part of Aerospace Expeditionary Force implementation.

The team also helped Detachment 1, 613th Air Support Squadron (ASUS) by taking care of some smaller projects for them in their spare time.

"The 36th CES was a tremendous asset to 613 ASUS by knocking out some small-scale but mission-critical jobs for me in their spare time," said Maj Hoot Gibson, Det 1, 613th ASUS. "The Commanding Officer and the British Representative are both impressed with how hard the team worked. They set the pace here on island."

The Navy Public Works Department on Diego Garcia helped the Air Force team by providing concrete and backhoe support through their BOS contract. The department also generated and tracked site approval documents for three of the assigned projects. "Here on Diego Garcia we all work together to accomplish our mission objectives," explained Commander Jim Souba, Public Works Officer. "The Diego Garcia motto is, 'One island, one team, one mission'."

Being on a Navy-run, BOS-contracted, British island in the middle of the Indian Ocean offered some unique challenges. "One of the biggest challenges for the team was locating materials and spare parts, the little things you usually don't give a second thought," said TSgt Mark Feste, 36 CES

TSgt Benanthony Rosario, A1C Jake Coffman and SSgt William Light build mechanical rooms for tent city electrical repair. ***(Photo by John Castiglia, DG21 Photographer)***

logistics guru. “We did a lot of improvising and bartering.”

Many airmen on the team were exposed to multiple crafts that they would not usually work in.

“I enjoyed learning new skills on the job. It kept things interesting,” said SrA Darrel Gomez. A1C Laureano Solis, Jr., a Heating Ventilating and Air Conditioning (HVAC) troop, helped with the block work in addition to working on environmental control units. SrA Tracy McBride, a horizontal troop by training, spent nearly all his time with the electricians, laying conduit and pulling cable. A1C Sean Schaefer, a liquid fuels maintenance (LFM) apprentice, helped with block work and with pulling cable on the electrical job. SSgt William Light, another LFM troop, also did paving and structural work. SrA Kenton Ellis, a supply troop by Air Force Specialty, mastered ground point testing and worked on a sizable repair to a compressed air line.

Others fine tuned the skills and trades they have been trained in, and some were given a chance to enhance their leadership skills. SMSgt Papineau ensured each person was gainfully employed and each foreman had what they needed to get their job done.

TSgt Robert Webber enjoyed the special challenge he was given — planning and executing an on-the-spot, full replacement of a critical corroded compressed air line at the munitions build-up area. He came up with innovative ways to do his job without parts availability. He and SSgt Joseph Perez, Jr. combined plumbing and HVAC methods to complete the job.

The team was also fortunate to have along SSgt Romar Balaoro, whose Tagalog language skills helped him establish a tremendous relationship with the local Filipino population.

Overall, the team members were proud of what they achieved in their short time on the island — improved relations with British military personnel and excellent wartime mission training. *Call 911 Prime BEEF!*

Capt Melinda Moss, 36th CES, Andersen AFB, Guam, was commander of the Prime BEEF team during this deployment.

(Left) **SSgt Joseph Perez and SrA Kenton Ellis paint grounding points on the south ramp at the Naval Support Facility on Diego Garcia.** ***(Photo by Capt Melinda Moss)***

36th CES Prime BEEF team members SSgt Thomas Phillips and A1C Sean Nelson inspect a door jam during construction of a land mobile radio repeater facility at Diego Garcia. ***(Photo by John Castiglia, DG21 Photographer)***

Where is Diego Garcia?

Diego Garcia is part of the British Indian Ocean Territory formed in 1965. The tropical island is 7 degrees south of the equator, one of 56 in the Chagos Archipelago south of India.

The island is a narrow coral atoll with a land area of about 11 square miles, nearly enclosing a lagoon. It stretches 34 miles from tip to tip.

In December 1966, the United Kingdom and United States signed a bilateral agreement making the islands of the British Indian Ocean Territory available for defense purposes to both governments. Both British and American flags fly over the island.

In 1977, the Navy Support Facility became responsible for maintaining and operating facilities and providing services and materials in support of several tenant shore activities and units of the operating forces. There are currently four Air Force detachments on Diego Garcia.

Recent world developments have highlighted Diego Garcia’s importance to the defense posture of U.S. and Allied Forces. Commencing with the Yemen crisis in the spring of 1979, the Iranian crisis of 1979-81, and continuing with Desert Shield/Desert Storm in 1990-91, Diego Garcia has played a primary role in the support of units operating in the Indian Ocean and Persian Gulf areas. *(From www.dg.navy.mil)*

DoD Conference Informs, Honors Firefighters

Air Force firefighters took two of four Department of Defense awards recently honoring the best military firefighter and best fire department of 2000.

The Military Firefighter of the Year Award was presented to SrA Luis Ortiz-Acevedo, 510th Civil Engineer Squadron, U.S. Air Force Academy, Colo. The Fire Department of the Year Award was presented to the 86th Civil Engineer Squadron, Ramstein Air Base, Germany.

Other DoD awards went to Glenn Zurek, U.S. Marine Corps, Camp Lejeune, N.C., as Civilian Firefighter of the Year and Specialist Paul A. DeWitt, U.S. Army, Fort Rucker, Ala., as the Heroism Award winner. All were nominated for the DoD competition after winning at the service level.

Air Force nominees also included Ronald D. Winham, 97th CES, Altus AFB, Okla., who received the Air Force Civilian Firefighter of the Year Award. The Air Force Heroism Award went to MSgt Mark Norris, Eglin AFB, Fla.; SrA Trevor Elsen, McClellan AFB, Calif.; SrA Sean Kirkeby, Randolph AFB, Texas; SrA Rudolf Kreybig Jr. and A1C Stephen Johnson, Sheppard AFB, Texas; SrA Michael Kiel and SrA Rory Shaffer, McChord AFB, Wash.

Several Air Force teams competed in a Firefighter Combat Challenge during the recent Department of Defense Fire and Emergency Services Conference in Austin, Texas. *(Photo by MSgt Mark Captain)*

The Heroism Award is usually presented to an individual or team from the same unit. This year's recipients are from different units, but they became a team during a mishap involving an aircraft they were passengers on.

In December 1999, a C-130 carrying 86 troops to Ahmed Al Jaber AB, Kuwait, landed short of the runway, causing the landing gear to violently rip through the fuselage. Three people were killed and 17 injured in the incident. The firefighters helped provide emergency aid to the victims while the heavily damaged aircraft regained altitude and was directed to make an emergency landing at Kuwait City International Airport. The emergency landing occurred about 48 minutes after the initial impact. The seven were honored for their extraordinary life-saving actions.

The awards were presented at DoD's Fire and Emergency Services Training Conference, Aug. 24-31 in Dallas, Texas. In addition to an awards ceremony, the conference provided an opportunity for firefighters to learn the latest developments in their field.

"Our focus was on providing managers new philosophies and ideas in managing a new generation of firefighters," said CMSgt Jim Podolske, Air Force Fire Protection program manager. Podolske, one of the conference organizers, briefed attendees on the Firefighter Certification and Firefighter Fitness Programs.

"Firefighter certification is now considered a qualification standard," he said. "In order to be eligible for promotion, you must be certified." The Firefighter Fitness Program, Podolske said, focuses on three areas: fitness training, which is cardiovascular conditioning and strength development; annual occupational assessments, where the firefighter actually performs 10 firefighter tasks; and a wellness component.

"Our goal is to strike a balance between cardiovascular fitness and strength," he said. "Someone may be very strong, but if they're out of breath after climbing a ladder, they can't do their job. Conversely, they may be a marathon runner, but if they're not strong enough to lift a person, they can't do their job, either."

The importance of firefighters achieving the correct balance of cardiovascular fitness and strength was demonstrated in a Firefighter Combat Challenge competition during the conference. Air Force members from RAF Mildenhall, Ramstein AB, Rhein Main AB and Tinker AFB participated in the intense, spirited, fitness competition, and scored well.

In addition to the DoD conference and Firefighter Combat Challenge, the Fire-Rescue International Training Conference, an annual conference and trade show attended by thousands of fire service professionals from more than 40 countries, was held concurrently at the same location. The conference is sponsored annually by the International Association of Fire Chiefs.

"The two conferences provide valuable networking and training opportunities for our fire and emergency services members," said Podolske. "They give DoD firefighters the opportunity to interact, share ideas and gain a perspective on the firefighting challenges that are unique to the different services. It also allows us to interact with manufacturers and get a first-hand look at new technologies and equipment that are being developed to make firefighting safer and more efficient."

The DoD conference's sponsorship is rotated annually between the Air Force, Navy and Army. The Air Force was this year's sponsor, and the Air Force Civil Engineer Support Agency, Tyndall AFB, Fla., organized and hosted the event. The Navy will host next year's conference, which is scheduled for August in New Orleans, La. *(HQ AFCESA Public Affairs)*

Planning for Installation Defense

Force protection standards that have passed the test of time

by 2Lt Kristy Fantz
66th CES

One of the most prominent and compelling subjects that Air Force civil engineers must deal with is *force protection*. Any engineer who has been on a 2001 MILCON (military construction) project team has most likely been witness to the constraints created by increased force protection standards.

The Department of Defense (DoD) released new universal antiterrorism construction standards in December 1999 in response to the increasing threat of terrorism against military installations. The policy applies to all new military construction of inhabited structures (except family housing) and all major renovations where modification costs are more than 50 percent of a building's replacement cost. It affects all projects programmed for fiscal year 2002 execution and beyond.

These standards can be especially frustrating in light of what seems to be ever-tighter budgets and limits to creative planning. However, the limits that applying these standards places on Air Force base designers do not outweigh the safeguards they provide our military installations and people. There are ways to achieve excellence in urban planning and design within these constraints.

Timeless Standards

Force protection is by no means a new topic. Civilizations on the defense have perfected force protection strategies over centuries. While the approach to and means of warfare have changed dramatically, these fortification standards have arguably passed the test of time.

Elements of the new force protection standards bear a striking resemblance to design precepts followed in building medieval fortified towns and colonial fortresses. There appear to be five basic precepts: a clear zone; a series of staged, non-axial entrance points; a series of inner rings of defense; highly fortified innermost structures; and escape routes. The presence of all five is the most effective design to ensure force protection.

A Clear Zone

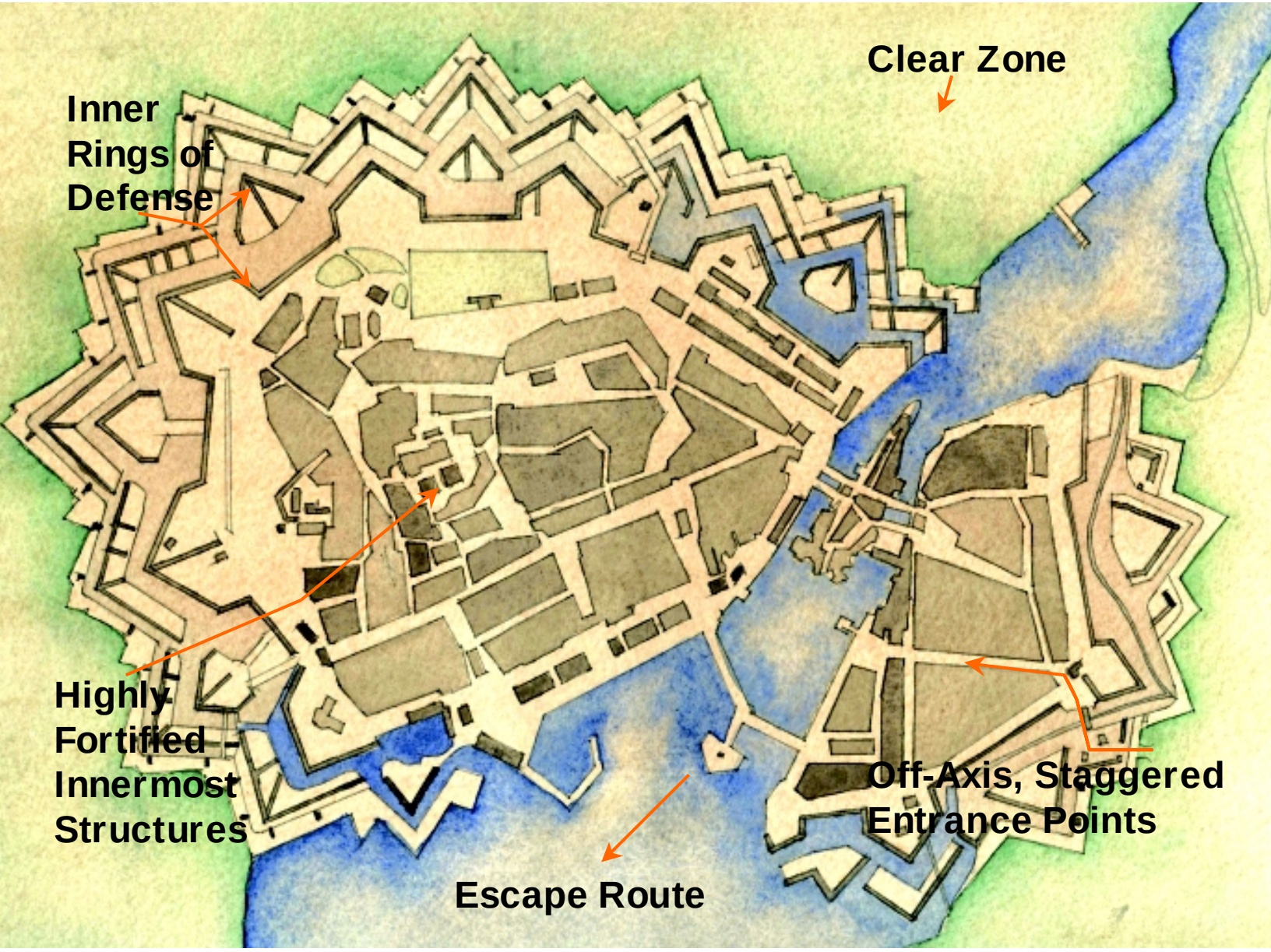
Every successfully designed fortress had a clear zone. This clear zone was usually an expanse of countryside that extended around the *enceinte* (fortified, outermost wall of the series of fortress walls). While the clear zone enhanced the aesthetics of the fortress, it had a protective purpose. It made it difficult for either unforeseen infiltrators or would-be perpetrators to conceal themselves near the fortress for a surprise attack. A clear zone has materially protective benefits for today's military bases, where tactical, close-range surprise attacks are still a threat.

A fringe benefit of clear zones is their beautifying effect. Many bases have experienced encroachment from run-down or abandoned strip malls, fast food chains and the like directly on their outer perimeters. Not only are these areas eyesores but, arguably, they also provide a sufficient place for an oil truck with a bomb to go unnoticed and positioned for surprise attack. If we take control of the land around our bases and prevent this type of development at our gates, we achieve two objectives: force protection, and a fundamental urban design principle that for every dense population there should be a crucial balance of countryside.

Off-Axis, Staggered Entrance Points

Most ancient fortified installations had a series of entrance points. The foremost gate, which was in the *enceinte*, was the first entry point from the outside world into the walls of the fortress. After passing this gate, passage to the inner areas of the fortress was through a series of off-axis gates. Often a moat or ditch, immediately after the foremost *enceinte* gate and before the first inner gate, had to be crossed by bridge as well.

Inner gates were highly fortified to restrict access to the village or castle that lay within. The number of entrance points varied, depending on the size of the fortress. Between entrance points the path would be staggered, and usually uphill, to slow down invaders. This design provided a protective advantage for the installation. If invaders successfully penetrated the outer wall, they still could not quickly penetrate the castle, providing defending forces a crucial timing advantage.



On the morning of October 23, 1983, a terrorist drove a truck loaded with explosives through the security perimeter of the U.S. Marine Corps barracks in Beirut, Lebanon. The resulting explosion killed 241 Marines, sailors and soldiers while they slept. Off-axis, staggered entrance points to the inner base could have averted or foiled the attack.

Indeed, the solution proposed to increase protection after this incident was to adopt a design resembling this ancient force protection principle. Designers created a series of entrance points with non-axial relationships. This design was a contributor to the "series of protected zones" guidelines that now exist within current force protection standards.

Inner Rings of Defense

Most fortified ancient civilizations protected themselves with inner rings of defense. The new force protection standards include guidelines for creating a series of inner defenses.

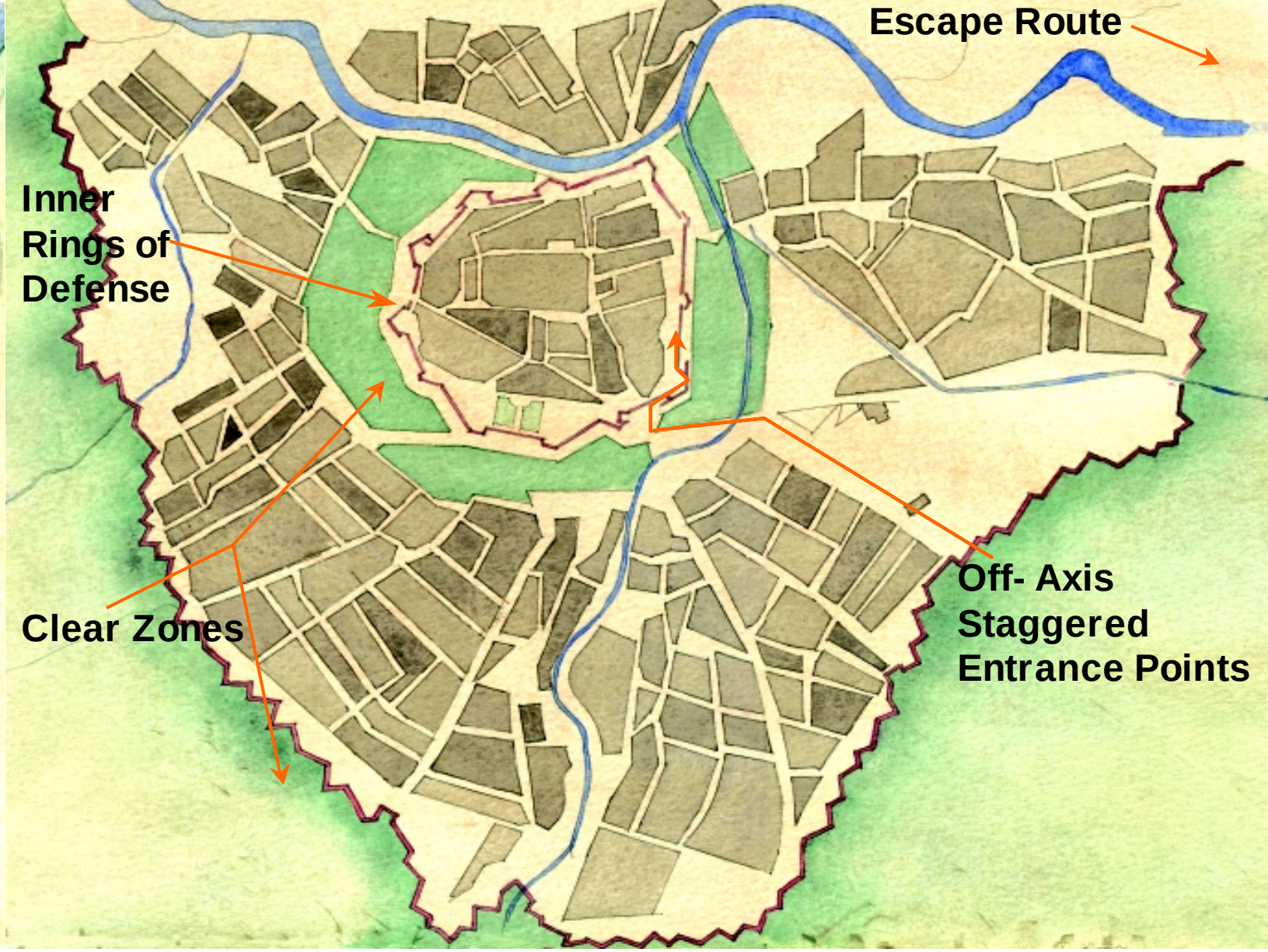
Watercolor renderings of two ancient cities: Geneva, Switzerland *(above)* and Vienna, Austria *(opposite page)*, display the use of several basic design precepts of fortification. *(Drawings by 2Lt Kristy Fantz)*

Arguably, one of the biggest threats to today's fortified installation is the car bomb. It is therefore sensible to design a base that places restrictions on vehicle access. Standoff distance, the space between a structure and the nearest road, is a ring of defense against car bombs. Planting trees within that space is another ring of defense. Clustering groups of buildings together and placing parking areas to the exterior, rather than creating a series of buildings that surrounds a parking area, mitigates the exposure risk a car bomb would present.

Further, this hierarchy of zones (from a centrally located "campus" of buildings to distributed, surrounding parking areas) can be linked together by green spaces and landscaped areas. This creates aesthetically pleasing, campus-like areas on base that encourage recreation far more than an area that places parking as its focus.

Highly Fortified Innermost Structures

In ancient fortifications the "keep" was the innermost and strongest tower (or other structure) of a medieval castle. This was usually the place of residence. The keep protected the



inhabitants of the village or castle against hits from catapults or other projectiles because it was built stronger and located in the most defended location.

The Air Force now enforces that primary gatherings (defined in the force protection standards as a subset of inhabited structures in which 50 or more DoD personnel routinely gather, e.g., office buildings and indoor recreation facilities) which house our people, are built to the highest protective standards and with a strong, rigid structure. The Air Force also recommends that a sensitive function, such as a wing headquarters, not be placed next to the base's gates. Such functions should be placed at the center of the base, where they are farthest from possible threats.

Escape Routes

Ancient urban planning sometimes called for a postern (hidden rear gate) at the rearmost area of the fortress, providing an escape route for inhabitants. The escape route was used in the event all the fortress's other protective design elements were unable to withstand an attack.

Consideration should be given to this element in the design of Air Force bases. There should be no areas in which people do not have an alternate way to escape (i.e., in the event of a terrorist threat or attack).

Learn from the Past, Protect the Future

The fortresses of yesterday were not threatened by atomic warheads, biological weapons, guided missiles, or car bombs. However, modern warfare tactics have modern warfare defenses. Following these design precepts is by no means an adaptation of archaic protective standards created to fend off bows and arrows, catapults, attackers on horses and the like. The most effective protection that a modern military installation has against unanticipated terrorist attacks is still precepts of fortification.

As military engineers, architects and planners, we should study the lessons of military planning history, so we do not repeat past mistakes. These five minimum standards begin to address this issue and protect our most important asset: our people.

2Lt Kristy Fantz is an architect for the 66th CES, Hanscom Air Force Base, Mass.

Chiefs Panel Meets at Luke

CE's former top enlisted leaders answer questions on current career issues, future trends

by Letha Cozart
Editor

The Air Force Civil Engineer's Chief of Enlisted Matters advises The Civil Engineer on matters affecting the CE workforce, especially readiness, morale, retention, training and work force utilization. Three chiefs who have held this top enlisted CE position gathered recently at Luke Air Force Base, Ariz., to discuss career matters and concerns with civil engineers there.

Panel members were CMSgt (ret) Larry Daniels, the first to hold the position from September 1989 to June 1992; CMSgt (ret) Ken Miller, who served from August 1995 to July 1998; and then-current chief of enlisted matters CMSgt Richard Park, who succeeded Miller and held the position until he retired in June 2000.

The 56th Civil Engineer Squadron sponsored and hosted the event, which included visits to each shop for informal discussions with the troops.

"The visit was an outstanding success," said CMSgt Fred Wagner, 56th CES chief enlisted manager. "We kept the chiefs moving from the time they got here until the time they left. We got them around to all of our shops, then had them meet with SSgts and below, the Top 4, and the lieutenants. These meetings were open forums," he said.

"We then had the Chiefs Panel, which was open to the whole squadron. Everybody gained knowledge about where we have been, where we are now and where we are going. They have a better understanding of why things have happened and how our senior leaders are doing everything in their power to make life in CE better," the chief said.

"I would highly recommend that every CE squadron do this," said Wagner. "The morale in this squadron has always been high, but it went even higher thanks to the visit from these outstanding chiefs."

Following are excerpts from the Chiefs Panel discussion.

TSgt Rick Felix: My question is for Chief Daniels, about multi-skilling. I came into the Air Force in 1983 as a carpenter. Now I'm expected to be a welder, a sheet metal man and several other kinds of craftsman. Did the guys realize it takes years to acquire enough knowledge and experience to become a real professional at so many things?

CMSgt Larry Daniels: Under the Defense Management Review, the Secretary of Defense gave us notice that we were to organize our facilities support just like the Navy does it. We fought back, but the only way we could save civil engineering was to initiate multi-skilling. It was a matter of survival, and along with that came a restructured squadron.

MSgt Patrick Martin: Carrying Sergeant Felix's question a bit further, if we take this process to the Nth degree, and we're about there now, personally I don't think the idea holds much merit out here in the field. Between privatization, the productivity that's requested of us, and deployment requirements, we're so jumbled we don't know if we're coming or going, or what should take priority. The lines are blurred. Am I a producer? Am I an airman waiting for the next war? Am I an actual warfighter? Where do we take our pride from? I see us becoming like the Seabees, a separate entity only responsible for responding to wars.

CMSgt Richard Park: You're right. There's no way anyone can argue with you that we have a very complex mission today, especially our craft AFSs. The lines get blurred for many of us on a daily basis. The advice I give to shops — especially the Electrical, Utilities and Structures Shops — is that you've got to consider the priorities of why we exist. We wear this uniform, Prime BEEF and RED HORSE, to go to war — to fight two major theatre wars and support the theatre commanders and the AEF [Aerospace Expeditionary Force] rotations.

The other services do not base any of their wartime manpower on maintaining infrastructure. The Air Force is the only one that pulls wartime manpower from a peacetime manpower standard. We man installations based on peacetime manpower standards, and we determine the number of military that we put into that standard based on our wartime requirement. So, the number of military that exists at Luke today is based on the wartime requirement for those suits.

First look at that, then understand what your wartime requirements are. Your training program should be set up using the dual priority system. The list of core tasks that is built into your Career Field Education Training Plan is the minimum we expect you to know as a utilities troop, either journeyman or craftsman. So first concentrate on the minimum Air Force requirement, the core tasks. Now in most career fields, we expect a lot more of you on a day-to-day basis than just your core tasks. So your second priority should be getting the training you need to take care of your duty position tasks.

Yes, there's going to be a lot of training required. You can't go to war untrained. Training and your day-to-day job build on each other. It is complicated, how we blend it all together, but I think it's vitally important to both the Air Force and the national defense to have you prepared, for example, as a Utilities Specialist to be able to go anywhere in the world and either run a distribution system or set up a ROWPU [reverse osmosis water purification unit] to provide potable water for the wartime components. That's the reason we exist.

I see training becoming more important as we transition to meet utilities privatization goals and other cost-saving measures

that come along in the future. Chief Miller is now a contract employee working utilities privatization at the Air Staff, so I'll give him a chance to respond.

CMSgt Ken Miller: The Secretary of Defense directed the military services to privatize all DoD utility systems. Further defined, they are the "big four" utility systems — electrical distribution, water distribution, wastewater and natural gas systems. The only provision for exceptions are for unique security reasons or where it's uneconomical to privatize.

What are "unique security reasons?" At first, most of us thought all Air Force bases could be exempted for security reasons. We reasoned, for instance, "We can't privatize Luke AFB because anyone who works for the Power & Light Company would have access to Luke. That would be unacceptable to us." But that isn't what was meant by security. Unique security reasons for the Air Force means an unacceptable impact on readiness.

After all, the CIA privatized the electrical distribution system at their headquarters in Virginia — not many locations are more secure than this. So the Air Force can't very well claim the electrical system at a given base is not privatizable because of physical security requirements. But we can make a valid readiness claim that we need a certain number of people wearing a uniform, in civil engineering, on active duty or in the Guard and Reserve, to fight two major theatre wars simultaneously. In today's Air Force, civil engineering earns manpower based on physical assets (real property) on an Air Force base, i.e., a utility system. Without systems there are no people; no people, no military; no military, no UTC; no UTC, no war fighting capability; no war fighting capability, no readiness.

The next decision on privatization is whether or not it's economical. If we sell a system to a local company, the new owner is going to charge us to do the operation and maintenance, which we used to do with our own workers and resources. The decision is purely economical — over the long term, we keep a system in-house only if it's cheaper than selling it.

SSgt Sharon Dedeaux: With the new AEFs and the way they're going to piecemeal teams, what will they do with equipment? Will they deploy our equipment by UTC [unit type code] and ship it by itself? Will they piecemeal it? Will craftsmen and journeymen take their own shop tools when they deploy? Are we going to just keep our equipment palletized and leave it sitting in the warehouse?

Chief Park: Very good questions. In fact, I have asked those same questions of the AEF experts at the Air Staff. I had the opportunity to sit and listen to General Ryan himself explain to the Air Staff how AEF is supposed to work for everyone. I've also had the opportunity to sit with our experts who make the AEF rotations. CE is in kind of a hard position. For one, we've still got to provide fire protection and maintain the systems here at Luke when we deploy around the world. One of the goals of AEF is that we won't break the back of home base support.

Our UTC structure, the lead team/follow team concept, was not conducive to AEF deployments. It was built for two major theatre wars. So, over the past year, they've been working hard to reorganize our complete UTC structure to blend it into the AEF rotational cycle, without breaking the back of home base support.

One great idea, I think it was a group of firefighters who thought it up, was the firefighter "six-pack UTC." It takes six firefighters to man a vehicle, and they have a UTC of six firefighters. Great. You just deploy the number of firefighters you need based on the number you've got in theatre. We broke down the lead team into smaller teams and, of course, the equipment packages would have to be re-grouped to go with that. They were still working that the last time I checked.

The second part of this is we have not broken the paradigm of the way we deployed in the past. The Chief of Staff has said we will deploy in the "team concept." The team concept is not Luke AFB or Luke civil engineering; it's UTC. Taskings will come from the theatre commander based on UTC. The goal is to get that done by AEF 10. Will they meet that goal? I don't think we will be totally there for another two or three rotations. It will take a while to work through, but the goal is that our equipment packages will be broken down based on the new UTC structure and that our taskings will come by UTC.

MSgt Joseph Shook: A question for all three of the chiefs about the present health of the readiness career field. I love what I do. Having said that, there's a lot of discord within my field. A lot of it is the nature of the job itself. We do a lot of intangible things you can't put your hands on. Many times you go home for the

Former chiefs of enlisted matters, *(left to right)* Larry Daniels, Richard Park and Ken Williams, fielded questions from 56th CES members during a panel discussion at Luke AFB, Ariz. *(Photo courtesy 56th CES)*

evening and ask, "What did I do to support the mission?"

Chief Daniels: I would liken your mission to the firefighters. The most important product the firefighters provide, other than putting out fires and saving lives, is confidence to the community. That's a powerful product. You train the base population — you instill confidence in them. It's an intangible product, but it becomes very tangible when the balloon goes up.

Chief Park: The Readiness AFS has a vitally important role in the Air Force. The world situation — the terrorist threat, the biological threat — has expanded. With it, a lot of things in your AFS have expanded. The same Chiefs Council that sat and fought over multi-skilling sat and talked about the Readiness AFS last July. We looked very hard at what needed to happen in that career field to rebuild it and make it healthy.

We ran a test case a year or so ago to see if non-prior service could be taught to do readiness activities, disaster preparedness and chemical warfare training. We needed to find people to get into the career field, if we couldn't get re-trainees, to grow the AFS and rebuild it as a full career path. Starting this month, non-prior service entries are going to be a permanent part of the career field. So we're doing things to rebuild the manpower.

I think low manning levels have hurt morale in the career field. You're healthy as to what your mission is and what the requirements are for the AFS, but you're not healthy based on the number of people you've got to do the job.

Right now, across all civil engineering, we're only 89 percent manned. Readiness is much lower than 89 percent, Operations is lower than 89 percent, Pavements and Equipment is lower than 89 percent. Knowing that, you can pretty well rest assured your manning levels are not going to reach 90 percent. If the Air Force is only at 89 percent, there's no way we can get you to 90 percent.

A1C Andrew C. Miller: Hopefully you gentleman don't feel as though you've been beat up with questions today, but I've got two more that are really easy. One, what is your AFS and two, how did the opportunity to get to where you are arise?

Chief Park: I was raised a dirt boy. I was a direct duty assignment pavements troop in 1974, so I didn't even go to tech school. I went straight to the base and started patching potholes and eventually learned how to run heavy equipment. I have had that AFS all my career. I made chief in the last promotion cycle that we promoted craftsman chiefs, so I even made chief as a dirt boy.

When the high year tenure rule came out, Chief Miller had to leave office. But he convinced General [Eugene A.] Lupia not to leave the position vacant until the next Civil Engineer. I threw my name in the hat knowing there was no way this old dirt boy would ever be selected for such a job. Then General Lupia called and told me, "I want you to come up, if you're willing to do that."

I didn't prepare for it — I just did the job I was asked to do during my career. Luck and timing win out sometimes. I was honored to have the opportunity to represent you in that position.

Chief Miller: The job today is advertised on the Air Force web site. So everyone should know when it is vacant and being recruited for.

One of the things I'm proudest of is, I tried to represent each of you from the perspective of your AFS, just as Chief Park does and Chief Daniels did. It doesn't matter what AFS you have — this position represents each of you. That said, I'm proud to say I'm an HVAC person. But during my whole career, I never turned down an opportunity to do another job in civil engineering. Today, I could probably make a pretty good electrician, plumber, dirt boy, structures, or power production specialist. The moral of the story is, don't turn down opportunities to work beyond your AFS. Take time and visit the other shops. Talk to your brothers and sisters there. If you do these things, you'll be well prepared to hold this position or one of the major command chief positions.

As you go from one place to another, you'll begin to form relationships and develop camaraderie with different people around the Air Force. Do that with much determination. Pick your relationships, develop them and stay loyal to them, because it will do you well in the long run. Don't be afraid of change. Stay flexible.

Chief Daniels: I started as a carpenter, direct duty out of boot camp in '66. They didn't have a carpenter tech school back then. I went right to the Travis AFB carpenter shop. I was one of the first replacements for the original RED HORSE squadrons in Vietnam in 1967. I went to the 820th as a 3-level. I spent a year in Vietnam, a good portion of my tour six miles below the demilitarized zone with the Marines in a small RED HORSE detachment doing some special projects. That's the kind of experience you only need once in your life. From there I went to Rhein Main AB, Germany, for five years, then came to Luke AFB.

In '76 I was forced to retrain as a triple nickel. I hated leaving the carpenter field, but it turned out to be a good move for me. I learned how to do project documents, 1391s, project books and project priorities. It taught me the importance of planning and programming.

Later, I joined the Civil Engineering and Services Management Evaluation Team. That's the team that traveled from base to base and gave you a scrub down for about a week. We'd leave a deck of cards recommending improvements in how to run your squadron. We outbriefed with Major General [Joseph A.] Ahearn. That's how I got to know him. A few years later, while traveling with the general on a plane back from Germany, he said, "Chief, I need a chief like you to come to the Pentagon. Would you be willing to do that?" The rest is history. What did I do to get there? I just took every job they gave me. I was proud to be the first enlisted guy there.

We're on number five now. Chief Mike Doris is coming in on the 2nd of June and hopefully it will continue on. They even have our pictures in the conference room along with the former generals. I guess once you get your picture on the wall, it's hard to get it down.

Building Partnerships and Homes

A unique solution to meeting the demand for quality, affordable family housing.

Air Force leaders and local officials forged a unique partnership to provide housing for enlisted personnel in the Colorado Springs area. Here, representatives from the City of Colorado Springs, the Colorado Springs Housing Authority, 21st Space Wing (Peterson AFB), 50th Space Wing (Schriever AFB) and Headquarters Air Force Space Command turn some dirt to kick off the project. *(Photo by G. Dennis Plummer)*

by Col David S. Zelenok
HQ Air Force Space Command

Providing new housing for our people remains a difficult, if not seemingly impossible, task for many base civil engineers. To help meet the increasing demand for housing at Peterson Air Force Base, Colo., officials there arranged a unique partnership with the local community; one that is worth noting. This article summarizes the background, approach and future of this innovative approach, now underway in Colorado Springs.

The Problem

Despite the growth of the nation's military space program in the last few decades, and the addition of thousands of military positions to Peterson, no family housing units have been built there since the mid-1970s. Adding to Peterson's growing problem, Schriever AFB , located roughly 8 miles east of Peterson, has grown steadily since the early 1980s but has no military family housing.

A recent housing market analysis conducted by Peterson officials estimated the additional housing need, or "deficit," to be 56 units, with a deficit of 80 units projected for 2004. Complicating the problem, Colorado Springs is undergoing an economic "boom" cycle that is now in its seventh year of sustained growth. During that period, the private sector constructed more than 4,000 single-family houses each year, local housing prices nearly doubled and mortgage interest rates rose. While the increase in housing prices may be good news for area homeowners, off-base housing is either unavailable, or is of poor quality, small size, or, for many of our junior members, unaffordable.

Background

In 1997, the Office of the Secretary of Defense Housing Revitalization and Support Office (HRSO) validated several scenarios to provide additional homes for the Peterson Complex, which includes Schriever and Cheyenne Mountain. As with many privatization scenarios being studied in the Department of Defense, the existing inventory of 491 well-maintained units (with a market value of roughly $50 million) would need to be conveyed to the private sector in order to

> "We knew this unique approach to housing had never been attempted anywhere in the country. There were no models — no success stories — for either the military or the civilian sector to follow. We're optimistic that the risks we're taking will be minimized and we'll be able to provide a valuable segment of our community with a much-needed commodity — quality housing at a price tailored to the enlisted families' abilities. I'm convinced this method can become a model development for use by other communities throughout the nation."
>
> *— Dick Sullivan, executive director, Colorado Springs Housing Authority*

provide the necessary financial incentives to obtain 200 new units. Simply put, the existing inventory would need to be "given away" as part of a larger package deal to attract a private developer to construct new houses and to maintain and, when needed, renovate the existing inventory under a long-term agreement.

An alternate mechanism was sought to gain additional housing for the Peterson Complex without conveying valuable on-base, facility assets. Ideally, the alternative method would cost the Air Force nothing, involve the private sector and be completed as quickly as possible.

Air Force Academy Housing

The Air Force Academy is located roughly 15 miles across town from Peterson. Because of a surplus of housing at the Academy, an agreement was reached between the two installations to allow personnel assigned to either the Peterson Complex or the Academy to place their names on either installation's waiting list for on-base housing.

The housing surplus at the Academy predictably diminished as many families assigned to Peterson, Schriever and Cheyenne Mountain moved into available quarters there. While this innovative approach satisfied some of the housing demand, the total inventory of available housing was still short of the demand.

Colorado Springs Housing Authority

Local and state governments often sponsor or create support agencies to help families with low to moderate incomes find affordable housing. While the definition of "low to moderate income" varies considerably from region to region, one fact remains constant: many military families qualify to live in government-assisted housing.

Like many communities, the City of Colorado Springs has established an independent governmental entity known as the Colorado Springs Housing Authority. Although the authority's governing body or "board" is appointed by the city's mayor, in many ways it acts like its own "government." The authority can issue its own debt or "bonds" and is free to buy, renovate and even construct new housing as financial conditions and local demand warrant. Unlike many governmental bodies, these kinds of authorities are not encumbered by the complicated, time-consuming acquisition processes often seen in the public sector.

A unique intergovernmental partnership was forged to provide the needed housing. Thanks to the efforts of a number of city officials working with the housing authority and both 21st Space Wing and Headquarters Air Force Space Command leadership, a number of plans were considered to provide housing at little or no cost to the Air Force. Key to this concept was the desire by all parties to supply new housing equal to or better than the quality available on the local economy.

An interesting part of this project was the evolution of the planning process and the eventual selection of a win-win solution. The initial plan was to have the housing authority construct 185 two- and three-bedroom townhouses on base. Due to the lack of available property near the existing base housing area, the site selected was a vacant portion of a 200-acre parcel known as "Pete East," located about a mile east of the main base near a new 13,500-foot runway constructed by the city. Like existing base housing, the units were to be built at a density of about nine per acre.

One of the goals established was to have the authority's housing cost no more than the average housing allowance of members assigned to the units. However, a conceptual design and cost estimate revealed that the costs of extending the street infrastructure, site development and utilities exceeded the maximum debt serviceable by the cash flow that would be generated by the combined housing allowances. Therefore, planners began looking at methods to reduce the net monthly rents by about $50.

One method considered was using RED HORSE labor to prepare the on-base site, with the authority providing only materials (asphalt, utility lines, concrete, etc). The considerable cost savings would translate to reducing monthly rents by about $50 per unit.

Other issues were examined concurrently in an attempt to reduce monthly rents. Because the City of Colorado Springs owns both the land on which Pete East is leased and the local utility enterprises, consideration was given to providing the proposed housing authority units the same discounted utility rates the Air Force receives. The difference in utility rates would save about $50 per month, but questions were raised regarding the propriety of giving the housing units' owner — technically, the housing authority — the Air Force's volume discount.

Another issue arose regarding the use of tax-free bonds, the financing mechanism. In essence, Internal Revenue Service rules that permit bond holders to claim tax-free interest on bonded indebtedness issued by state and local governments

The new housing complex will include:

- fireplaces
- a swimming pool
- a hot tub
- laundry hook-ups
- a "tot lot" playground
- some covered parking
- a business center/meeting room

Housing Authority Advantages

Because the housing authority is a "non-profit" governmental entity, it enjoys a number of advantages over its private-sector counterparts, including:

- It doesn't need to earn a specific return on its investments (e.g. "a profit").
- It doesn't pay taxes.
- It can issue bonds which exempt buyers from federal, state and local taxes, reducing the effective interest rate on borrowed funds by about 2 percent.
- It doesn't need to follow the same rules for lending, depreciation or risk management.
- It can reduce bad debts by requiring tenants to pay their rent from their paychecks by direct allotments.

The new housing complex was dedicated in June. Pictured from left to right are Wayne Williams, chairman, Colorado Springs Housing Authority; Brig Gen Mike Drennan, commander, 21st Space Wing; Dick Sullivan, executive director, Colorado Springs Housing Authority; and Col Jack Perroni, vice commander, 50th Space Wing. *(Photo by G. Dennis Plummer)*

do not specify whether the bonds may be used for purposes intended exclusively for military members. As a result, questions arose about the authority's ability to place only military tenants in the on-base housing. In other words, the possibility of allowing civilians to live in on-base quarters raised a number of concerns and complicated security and policy issues.

Meanwhile, 21st Space Wing officials at Peterson insisted that one obvious question be answered: Do military families actually *want* to live in on-base townhouses? Potential tenants were surveyed and the answer, surprisingly, was "not really." Many respondents indicated that, while they enjoy living in proximity to other military families, they would prefer living off base in the rapidly developing northern part of the city.

With this information in-hand, the housing authority searched for a new, off-base site. An area east of the base with reasonably priced land was considered, but infrastructure construction costs and associated development fees required to obtain zoning and building permits were deemed too expensive.

Undaunted, yet another option was considered — purchasing an existing apartment complex west of the base, renovating it, and encouraging the on-base housing office to refer military members to it. However, an analysis of the vicinity by the base's Security Forces Squadron revealed concerns related to the neighborhood's "livability." As a result, that location was rejected. The housing authority evaluated a number of other options, finally deciding to construct a new complex.

> "In short, the Air Force is obtaining the use of millions of dollars of assets without any financial contribution by the federal government. Even better, this first-of-its-kind initiative is squarely aimed at our junior people. We are continuing to bridge the gap between needed housing and the very real and sincere interests of the local community. It's about people, retention and making things better through partnerships."
>
> *— Col Carl Tickel,*
> *The Air Force Space Command Civil Engineer*

Local Agency Partnering

The final solution was for the authority to acquire a 4-acre site in a northern Colorado Springs residential subdivision. The total cost of the units is expected to be roughly $6.3 million. The Colorado Springs City Council recently approved a $250,000 loan to assist the housing authority in funding the project. In addition, $4.5 million will be provided by the proceeds of a tax-exempt loan from U.S. Bank at a below-market interest rate. An additional $1.48 million will come from the housing authority's own fund balance of cash reserves acquired from revenues on other projects. Most importantly, total Air Force contributions: $0.

While the units will not be exclusively for military family use, the housing authority will give military families priority placement, and the base housing office will work closely with the housing authority to keep the units filled to capacity.

The Way Ahead

The groundbreaking for the new 80-unit complex, called Creekside at Nor'Wood, took place June 12. With construction well underway, dozens of military families should begin moving into the units early next year. Like government-owned housing, the rents will be paid directly from members' paychecks, and, by agreement with the authority, will match the individual's housing allowance.

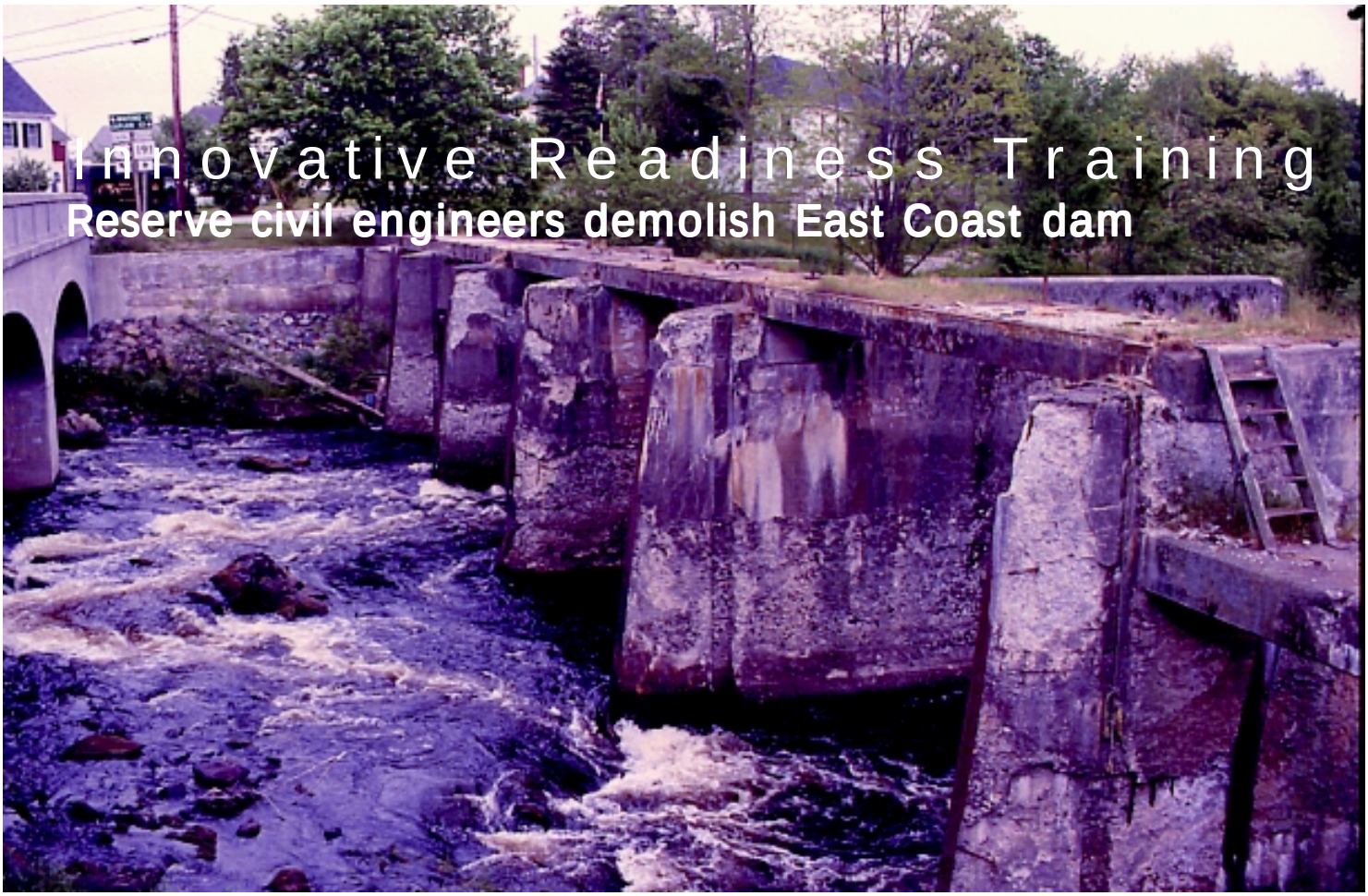
Although many of the details are still being finalized, one thing is clear: these units will satisfy some of the demand for low-cost housing in the Colorado Springs area, particularly for our junior enlisted families who are most in need of the assistance.

It's important to reiterate what makes this housing complex feasible — a large part of the financing package is done at rates well below those available to private sector housing developers. As noted, federal tax laws ironically prohibit the use of below-market financing for a complex that is exclusively military. Still, there is no prohibition against allowing one that would merely give *preference* to military. And, the housing authority need not calculate many of the finance-related issues that the private sector must. As a result, issues such as return on investments, depreciation, risk management, profitability, etc., can be viewed differently by the authority as it fulfills its own mission — providing housing to low and moderate income families in Colorado Springs.

Col David S. Zelenok was the individual mobilization augmentee to Col J. Carlton Tickel, Command Civil Engineer, HQ Air Force Space Command, Peterson AFB, Col., during this project. He is now IMA to Col Richard E. Webber, Commander, 50th Space Wing, Schriever AFB, Colo.

Innovative Readiness Training

Reserve civil engineers demolish East Coast dam



by Bo Joyner
HQ AFRC Public Affairs

On an unseasonably cool mid-June morning in the small town of East Machias, Maine, the steady pounding of a jackhammer on decades-old concrete served as a wake-up call for the locals who weren't already up and running.

It was only 7:30 a.m., but a small team of Air Force reservists from across the country was already on the job at the meandering Machias River. The reservists' overall mission was to level the old East Machias dam and what was left of the East Machias hydroelectric station. Their immediate task was to try to remove intact the large bell-shaped hydrocone from the bottom of the turbine house that had produced electricity for this region for about 40 years.

Town officials were hoping to salvage the steel hydrocone and put it on display as a historic relic. The reservists, led by project manager CMSgt Gil Taylor, an individual mobilization augmentee assigned to the 16th Civil Engineer Squadron, Hurlburt Field, Fla., were eager to oblige.

"We're trying to get it out in one piece, but the bottom is under water and covered with debris, so it's hard to see what we're dealing with," Taylor said.

Unfortunately, after another couple days of digging, pounding, pushing and pulling with a variety of pieces of heavy equipment, the cone would not come free in one piece. The bell more or less disintegrated during the removal process due to corrosion from decades of being under water. The reservists moved on with the task at hand.

The East Machias dam was built in 1926 but has been out of commission since the 1960s. Air Force civil engineers were in eastern Maine this summer to demolish the dam and receive valuable training. ***(Photo by Bo Joyner)***

This wasn't typical Air Force civil engineer work, but for Taylor and the 10 NCOs who were hard at work, it was a tremendous training opportunity.

"These folks are getting the chance to log time on all sorts of heavy equipment," Taylor said. "They're honing their skills, and the city of East Machias is getting rid of a dam it has wanted torn down for many years. Everybody wins."

"Everybody winning" is a fitting theme for Air Force Reserve Command's Innovative Readiness Training Program — a civil-military partnership through which reservists, primarily civil engineers, medical specialists, logisticians and supply technicians, receive valuable training while leaving something of value behind for communities within the United States.

"Innovative Readiness Training (IRT) is one of the Air Force Reserve's greatest success stories," said Capt Sheldon White, IRT program manager. "It just makes a lot of sense for reservists who need training in construction or any other area to conduct that training in ways that benefit people, build relationships with the community and leave a strong sense of pride and accomplishment with our troops."

In the past few years, reservists have built and repaired roads, constructed low-income housing units and distributed

excess medical supplies — all under the IRT umbrella. To date, most of the command's IRT programs have benefited Native American communities.

"But when we heard Coastal America was wanting to demolish some old dams that were originally used to generate power for the mills along the East Coast, we thought it might be some good training for our folks," White said.

Coastal America is a multi-agency partnership established to restore and protect the coastal environment. Federal Coastal America partners include the Departments of Agriculture, Commerce, Defense, Energy, Housing and Urban Development, and the Interior; the Environmental Protection Agency; and the Executive Office of the President.

With more than 300 projects in 26 states, the partnership has restored thousands of acres of wetlands, re-established hundreds of miles of spawning streams and protected endangered species.

The Bangor Hydroelectric Co. built the dam and electric station in East Machias in 1926. In the late 1960s, a section of the penstock that directed water from the dam to the station blew out, disabling the facility. It was never repaired. What was left was an eyesore of an old dam, the concrete base of the turbine house (the brick building that sat on top of the base was torn down a long time ago) and portions of the penstock.

"We've been trying to get the dam torn down for years, but we just haven't had the money," said Kenneth R. Davis, East Machias first selectman. "It's a safety hazard because kids can climb up there to play," he said, adding that demolishing the dam would also restore the natural flow of one of eastern Maine's sea-run salmon rivers.

In recent years, salmon runs on eastern Maine's rivers have declined dramatically. In fact, federal agencies have threatened to declare the fish an endangered species, prompting Maine officials to create a salmon conservation plan designed to improve river conditions so the fish would return.

Excavators with jack hammer attachments chip away the remaining concrete portions of the dam. Equipment was rented from companies in Maine to complete the project. For some, it was their first time training extensively on heavy equipment that is in short supply at Air Force Reserve bases. The concrete chunks were removed to restore the river to its natural state. *(Photo by Capt David Kurle)*

Taylor said working beside, and sometimes in, the Machias River provided a unique training opportunity for his team, since engineers are expected to perform a wide variety of missions in all kinds of weather and climates.

"We look for projects that will give us good experience in a variety of different environments," he said. "Last summer, for example, we built a hospital parking lot in a secluded section of New Mexico that was very dry and arid. This summer, we're working with heavy equipment in a river in the middle of a town."

"There's some great training here," said TSgt Dave Ritter, 932nd CES, Scott Air Force Base, Ill., as he worked the controls on a 30-ton crane. "In my civilian job, I deliver heavy equipment to construction sites. Here, I get the chance to spend a lot of time actually operating the machines."

TSgt J.R. Eick, 919th CES, Eglin AFB, Fla., works full time as a registered nurse. He spent two weeks in East Machias running bulldozers, cranes and other heavy equipment.

"This is the first time I've operated that jackhammer," he said. "It's been great training for me. Plus, these are some really nice people up here. I'm glad we can help them out."

In addition to the dam demolition, hundreds of reservists will take part in a host of other IRT projects this year. Most of the civil engineer projects take place in the summer months. The medical and warehouse projects take place year-round.

Maj Gen James E. Andrews *(right)*, deputy assistant secretary of defense for reserve affairs (readiness, training and mobilization), toured the site July 17 and presented artifacts from the dam to the town during a ceremony celebrating the completion of the project. Pictured *(left to right)* are TSgt George Guilliams, SSgt Joeseph Krauss, TSgt Verle Palmer and MSgt John Mankins. *(Photo by Capt David Kurle)*

A RED HORSE RoundUp

35 years of supporting the Air Force civil engineer mission worldwide

by Lois E. Walker
AFCESA Historian

Thirty-five years ago, RED HORSE was born out of the Air Force's need for self-sufficient squadrons with bare-base development and heavy repair and construction capability during the Vietnam War. Since then, they have provided the Air Force a highly mobile civil engineer response force in support of contingency and special operations worldwide.

Members and alumni celebrated the 35th anniversary of RED HORSE Sept. 12-14 at Hurlburt Field, Fla. A RED HORSE commanders' conference on current and future issues affecting "the Horse" coincided with the event. Representatives from all 15 current and former RED HORSE units — active duty, Reserve and Guard — attended.

Cutting the ribbon on the new RED HORSE Hall of History at Hurlburt Field on Sept. 13th, 2000, were *(left to right)*: Col David J. Scott, commander, 16th Special Operations Wing; Lillie Grayer, secretary to the 823rd RHS commander for the past 32 years; TSgt Clyde Phelps (ret.), the enlisted member with the most years in RED HORSE, and Brig Gen William T. "Tom" Meredith (ret.), who helped establish the RED HORSE program in the mid-1960s. *(Photos by Lois E. Walker)*

Activities at the Roundup included dedication of a RED HORSE Hall of History and an "I Was There" History Roundtable discussion. Newer members heard first-hand accounts of RED HORSE operations from Vietnam to Kosovo and learned valuable lessons from the experience and insight of seasoned Horsemen. A full range of static equipment displays and demonstrations, a RED HORSE challenge competition, and a selection of social activities rounded out the anniversary celebration.

What follows is a quick look at current and past RED HORSE units. While each unit's full history could fill a book, these summaries are intended to demonstrate the diversity of projects and missions the units have performed and why they have been such a valuable asset to the Air Force and the nation.

554th This was the first RED HORSE unit deployed to Vietnam, arriving in February 1966. Its first major project was repair of the AM-2 runway at Phan Rang Air Base. In 1967, it became the first RED HORSE unit to own and operate a concrete batch plant, constructing parking aprons. The unit also completed numerous dormitories, dining halls and other facilities at several bases. The 554th moved to Cam Ranh Bay in 1970 and Da Nang in 1971. By the end of 1971, the 554th was the only squadron remaining in the Republic of Vietnam. It moved to U Tapao AB, Thailand, in 1972 to remove modular facilities there. In 1976, the unit moved to its current location at Osan AB, Korea, and had a detachment in the Philippines for a short time. The unit's size was significantly reduced in the mid-1990s, but a plus-up is currently in the works.

The 554th is active in natural disaster recovery work in the Pacific region. The Han River flows near Osan AB, and floods on a regular basis. Using their heavy equipment, RED HORSE has repaired levies and minimized damage to the base and the local community numerous times. They also played an important role in the recovery and repair of Clark AB, Philippines, following the eruption of Mt. Pinatubo. The 554th is assigned to Seventh Air Force as a Pacific Air Forces asset.

555th The 555th, one of the original units and the second squadron to arrive in Vietnam, was headquartered at Cam Ranh Bay from 1966 to early 1970. The unit completed much of the troop housing, roads and utilities on the base. The 555th constructed hundreds of buildings, maintained AM-2 runways, taxiways and parking aprons, and sent deployed units to several other locations to construct facilities. It was inactivated at Cam Ranh Bay in January 1970.

556th The 556th was activated at Forbes AFB, Kan., and sent to U Tapao AB, Thailand, during the Vietnam War. The unit also had detachments at five other Thai bases. With the exception of a taxiway-runway-apron complex at Nakhon Phanom AB, the unit concentrated primarily on construction of dormitories, dining halls and other facilities. The 556th remained in Thailand until its inactivation at U Tapao in late 1969.

557th The 557th was established and deployed to Osan AB, Korea, in April 1968 to assist in the buildup resulting from seizure of the *USS Pueblo*. The 557th was based at Osan, but had active detachments at Kwang-ju, Taegu, Kunsan, Suwon and Kimpo. During its 18-month stay in Korea, it was involved in constructing aircraft shelters, modular facilities, revetments and other mission-essential facilities to support the additional U.S. Air Force flying units in-country. The 557th left Korea in 1969 and was stationed at Eglin AFB, Fla., until its inactivation in mid-1972.

560th The 560th was activated at Eglin AFB, Fla., in November 1966. Also known as the Civil Engineering Field Activities Center, the unit was respon-

sible for training replacement personnel destined for RED HORSE units in Southeast Asia. The 560th was capable of field training 2,400 individuals each year to keep the six RED HORSE squadrons up to strength. The 560th continued this mission until inactivated in early 1970.

819th The 819th was activated at Forbes AFB, Kan., in February 1966 and deployed to Phu Cat AB, Vietnam, in August 1966. It eventually completed much of the facility construction and a large percentage of the earth moving and paving required at Phu Cat. The unit placed more than 2 million square feet of AM-2 matting and erected more than 5,000 linear feet of aircraft revetment. The 819th deployed briefly to Tuy Hoa AB to help close the base in 1970. It returned from Vietnam in 1970, and was stationed at Westover AFB, Mass., until 1973 when it moved to McConnell AFB, Kan. In 1979, it was assigned to Royal Air Force Wethersfield, United Kingdom, and was tasked with rapid runway repair responsibilities for U.S. Air Forces in Europe, along with its traditional heavy repair role. The 819th was inactivated at RAF Wethersfield in August 1990. Seven years later, it was reactivated at Malmstrom AFB, Mont., as the first-ever Air Force-Air National Guard RED HORSE associate unit.

The unit's first full-fledged mission after reaching full manning was in November 1998, when it deployed with members of the 820th RHS to Central America to perform essential infrastructure repair in the wake of Hurricane Mitch. The 819th RHS is an Air Combat Command asset, assigned to Ninth Air Force.

219th The 219th RED HORSE Flight was activated as an Air National Guard associate unit to the 819th RED HORSE Squadron in 1997. The 219th RHF provides one-third of the manpower and equipment of the 404-person combined squadron. Although the 219th RHF is a relative newcomer to the RED HORSE mission, its roots can be traced to a long-established Air National Guard civil engineer unit — the 120th Civil Engineer Squadron, which was assigned to the 120th Fighter Wing, Great Falls International Airport, Mont.

820th The 820th RHS began as the 820th Installations Squadron at Plattsburgh AFB, N.Y., in 1956, but was inactivated in 1964. It was reactivated in April 1966 and began training in July for deployment to Tuy Hoa AB, Vietnam, in October. This unit completed nearly 50 percent of all construction at Tuy Hoa, including 170 aircraft protective revetments, 120,000 square feet of wooden buildings and 175,000 square yards of AM-2 matting. The unit moved to DaNang AB in 1969. The 820th returned from Vietnam in 1970 and located at Nellis AFB, Nev., as a Tactical Air Command (now Air Combat Command) asset, assigned to Twelfth Air Force. In 1990, a contingent from the unit deployed to support the coalition effort during the Gulf War. In 1999, 820th RHS support to Joint Task Force Shining Hope during Operation Allied Force included critical road and bridge repairs and construction of a new 1,000-foot taxiway at Rinas Airport, Tirana, Albania.

A 'Dozer Race was one of the events at the RED HORSE Challenge, held as part of the RED HORSE Roundup anniversary celebration. It involved pushing a concrete-filled, 55-gallon drum through a dirt course and around a traffic cone. What makes the event difficult is the operator cannot see the barrel from the cab and has to complete the task by feel.

823rd When the 823rd arrived at Bien Hoa AB, Vietnam, in 1966 it reorganized into four self-sufficient units to complete urgently needed construction. By January 1967, deployed units were in place at Tan Son Nhut, Vung Tau, Da Nang and Pleiku, while a unit remained at Bien Hoa. The 823rd, inactivated in 1971, was reactivated at Eglin AFB, Fla., the following year. It became a TAC (ACC) unit. In 1975, members constructed a tent city at Eglin for 5,000 Vietnamese refugees. In 1990 the unit deployed to Saudi Arabia in support of Operations Desert Shield/Desert Storm. In 1993 they deployed to Somalia in support of United Nations-sponsored Operation Restore Hope. In 1995 they deployed to Bosnia to bed down Army troops supporting Operation Joint Endeavor, and in 1996 they built tent cities at Prince Sultan AB, Saudi Arabia, to accommodate the move from Dhahran AB following the Khobar Towers bombing. In 1999 823rd RHS personnel deployed to forward locations throughout Europe to support Operations Allied Force/ Sustain Hope. The 823rd RHS is an Air Combat Command asset, assigned to Ninth Air Force.

307th As the active duty squadrons decreased in number, RED HORSE capability expanded to the Air National Guard and Air Force Reserve. The 307th RHS was originally organized in July 1971. Detachments 307 and 308 were located at Ellington AFB, Texas and Barksdale AFB, La., respectively. In 1976, the Ellington unit relocated to Kelly AFB, Texas, and was designated the headquarters. The Barksdale unit remained on location but was re-designated Detachment 1, 307th RHS. The 307th deployed to Central America in both 1999 and 2000 to drill several water wells and provide medical assistance as part of the New Horizons humanitarian exercise. It is assigned to the 610th Regional Support Group, Air Force Reserve Command.

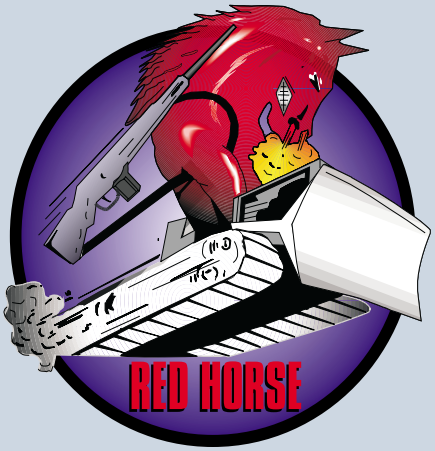
200th/201st The Air National Guard established its RED HORSE units at Camp Perry ANG Station, Ohio (200th RHS) and at Indiantown Gap ANG Station, Pa. (201st RHF) in 1971. The mission was to develop the same capabilities as the active duty counter-

parts, but also to provide the ANG with in-house capability to provide training for Prime BEEF teams. The units have deployed members to locations around the world to support Department of Defense projects, and supported state and local citizens through various civic action programs. The 200th and the 201st deployed to Camp Snoopy, Qatar, for three months this year to take on more than a dozen construction projects. In addition to the RED HORSE mission, the 201st operates three training sites at Fort Indiantown Gap.

202nd/203rd In January 1985, the ANG activated the 202nd RHS at Camp Blanding in Starke, Fla. Three weeks later, the 203rd RHF was activated at Camp Pendleton in Virginia Beach, Va. The 202nd helped defeat wildfires in Florida in the spring of 1998, and supported Hurricane Opal recovery efforts that fall. In 1999, members of the 203rd deployed in support of Operation Southern Watch in Southwest Asia and participated in Exercise Northern Viking in Iceland.

31st The 31st RHF is housed at Camp Darby, Italy, and is a U.S. Air Forces in Europe unit, assigned to the 31st Support Group at Aviano AB, Italy. Its job is to equip, store and maintain heavy-repair vehicles and support equipment and move it to various forward-operating locations. Unlike most RED HORSE organizations, the 31st has few civil engineers. Vehicle mechanics and supply specialists comprise half the flight. In September, 1997, the unit provided natural disaster assistance to Assisi, Italy, following an earthquake that left 4,000 homeless. In May 1998, the 31st RHF assisted following a massive mudslide in Siano, Italy. Vehicle operators used Bob-Cat loaders to clear an estimated 500 tons of mud. The unit supported RED HORSE deployments to Bosnia during Operation Joint Endeavor and in the Balkans during Operations Allied Force/Sustain Hope.

(Material compiled from reports by Dr. Ron Hartzer, Lt Col Tracey Walker, Air Force News Service and unit web sites.)



RED HORSE Leads Bold Venture

The 823rd RED HORSE Squadron served as the lead unit for Combined Task Force Bold Venture this summer. The task force was responsible for executing the mission of Exercise New Horizons 2000 Jamaica: constructing two new buildings, drilling two water wells and providing two weeks of free medical care.

Jamaica's terrain proved challenging. Narrow, winding roads led to the base camp and to each of the job sites, making driving difficult for the task force, especially the younger troops who had never driven outside the United States. The roads took a toll on the vehicles, keeping the RED HORSE vehicle maintainer busy the entire deployment.

The 823rd set up tent city in a confined area in Moneague, a rural countryside town. Because of the sloped terrain, the build-up crew constructed platforms to raise and level each tent, some by as many as 5 feet, creating a "tent city on stilts."

Having prepared the base camp, the squadron was prepared to tackle the construction projects. Two crews worked simultaneously: one on a new operations center for the Jamaica Defence Force (JDF); the second on a new school for underprivileged girls.

Initial site preparation for the JDF operations center was tricky, as it was located at the top of a solid limestone hill. "The rock had to be hand-chipped away for the footers, electrical rough-ins and plumbing," said Capt Brian Poyant, project engineer.

The crew constructed the 3,000-square-foot building with concrete block. Because of a concrete shortage on the island, the crew had to use 6-inch block, rather than the standard 8-inch.

"The 6-inch block gave us anywhere from 2 inches to 14 inches of deviation in the length of the walls," said MSgt William Burnell, operations center project manager. The crews cut smaller pieces of block to make up the difference.

The construction of the operations center provided great training for his troops, Burnell said. "Everything we do in our career field, we were able to do on this job site. Our younger guys got a taste of every facet of our trade."

To help with training, Burnell had his crew turn off their power tools and work manually at times. "I'm giving these troops a great deal of experience by taking some of the technology away from them," he said, adding that they may encounter a job in the future where the equipment they are used to is not available.

The second crew built a new schoolhouse for the Windsor Home for Girls, a government-run home for orphaned, abandoned or abused girls, ages 12-18. The previous school was falling apart and unsafe.

The school's location, also at the top of a steep hill, made getting tools and materials to the site complicated. "The site was inaccessible by vehicles and heavy equipment," Poyant said. "Materials had to be craned in or hand-carried."

SrA Chris Day, foreground, and Albert Gates, 823rd RHS, apply mortar and strike the joints between blocks during the construction of an operations center for the Jamaica Defence Force at Moneague Training Camp, Jamaica, June 5, 2000.

Members of the 823rd RHS clear debris to make way for the construction of a new school house at the Windsor Girls Home in St. Ann's Bay, Jamaica, May 17, 2000. *(Photos by TSgt. Steve Faulisi)*

Members of the 823rd RHS build steps during beddown at Moneague Training Camp, Jamaica.

The new school is a two-story building with nine classrooms, one bathroom and a mechanical room. The first floor was made with concrete block; the second floor with wood construction.

In addition to building the school, the crew covered the secondary water tank the school uses for emergencies. They also did plumbing and electrical repairs inside the house where the girls live.

Before the repairs, the girls had one working toilet in the house and an outdoor shower house. The house now has four working toilets, two showers and a bathtub.

While construction was going on at both sites, the 823rd maintained their base camp for 90 days and supported two other services.

The U.S. Navy Seabees came to the island to drill two 800-foot water wells with 8-inch casings. RED HORSE set up a second base camp on stilts for them about 1.5 hours from the main camp and provided services and medical support. After the first well was completed, RED HORSE moved the Seabee camp to the second well site, about one hour from the camp.

Thirty-five medics from the South Dakota Army National Guard provided two one-week medical clinics to the Jamaican people as part of the exercise. The 823rd housed them at the main camp and provided water and contracting support for the clinics.

The main body of the task force was in Jamaica from May 15 to July 29. *(1st Lt Travis B. Tougaw, JTF Bold Venture Public Affairs)*

CE WORLD

Kunsan CEs Battle Floods, Mudslides

Civil engineers at Kunsan Air Base, Republic of Korea (ROK), worked to ensure the base remained mission-capable as heavy rains caused flooding August 24-27. Rainfall exceeded 23 inches, setting a monthly record for total precipitation in August, according to base meteorological records.

Kunsan's 8th Civil Engineer Squadron activated its damage control center after it became apparent base facilities were flooding.

"The fire department usually handles our service calls at night, but the flooding went beyond their capabilities," said Maj Raymond Sable, 8th CES deputy commander. "We knew it was going to get worse before it got better."

Numerous facilities flooded, including flying support and base support facilities. Flooded buildings included the base theater, food court, other leisure activity buildings and various operational support facilities. Also, many base facilities experienced leaks. About 100 civil engineer troops battled the flooding and leaks, including plumber SSgt Randy Clapton.

"I've had about six hours of sleep the entire weekend," Clapton said while standing in about 12 inches of water on the base theater floor. At one point, flooding in the theater reached the third row of seats. Ironically, theater customers were watching the movie "The Perfect Storm" the night before when water from Kunsan's record storm crept in.

SSgt Randy Clapton, 8th CES, used a suction pump to extract more than a foot of water from Kunsan AB's theater Aug. 27. At its highest point, water in the theater reached the third row of seats. ***(Photo by MSgt Will Ackerman)***

Kunsan City officials requested 8th Fighter Wing and Kunsan-based ROK army mutual aid to re-open the four-lane primary artery road between Kunsan AB and Kunsan City. Soil had broken free from an embankment on the side of the highway, causing a mudslide that closed the road. Civil engineers responded with three front-end loaders and two dump trucks. Kunsan and ROK army troops loaded more than 2,600 tons of mud, concrete and debris into an assembly line of dump trucks throughout the day until the road could be re-opened that night.

An 8th CES member uses a front-end loader to scoop mud and debris from the main road between Kunsan AB and Kunsan City. Record rainfall in the area resulted in a mudslide that closed the road. ***(Photo by SrA Sarayuth Pinthong)***

"It was a great effort by the ROK army and the (U.S.) Air Force," said Maj Jeff Crewe, 8th CES operations officer. "We are here at the invitation of the Korean government. It's important we provide support to our neighbors in Kunsan City."

"We had base people who worked nearly non-stop throughout the weekend," said Col Philip Breedlove, 8th FW commander. "Because of Wolf Pack members' efforts, we saved a lot of base facilities from significant damage.

"We also showed we are part of the local community, and not a separate entity," he said. "Kunsan City needed help, and (ROK army's) 106th Regiment and the 8th Fighter Wing formed a team and opened the road for the city. You never know how good your people are until their backs are up against the wall."

Breedlove said he is particularly proud of Crewe, SMSgt William Ferenc and MSgt Scott Rudd, and their 8th CES crew who performed the off-base cleanup.

"They were in a flurry of activity. The team showed incredible professionalism and proficiency," he said. *(MSgt Will Ackerman, 8th Fighter Wing public affairs)*

CE PEOPLE

CE Volunteers Build Homes in England

Habitat For Humanity, an international charity dedicated to wiping out homelessness around the globe, is benefiting from some Air Force expertise as more than a dozen 423rd Air Base Squadron civil engineers from Royal Air Force Alconbury, England, have volunteered their time on a local project.

The project involves building several homes in London's Southwark borough. While volunteers come from a wide variety of backgrounds, organizers are thrilled when their projects attract the attention of construction specialists such as those from the 423rd. (The squadron is comprised of three bases: RAFs Alconbury, Molesworth and Upwood.)

"Members of the civil engineer flight have served as volunteer construction experts on the Southwark project since last year," said MSgt Linda Tarach, volunteer coordinator for the chapel's outreach program with Habitat. "It's all strictly volunteer, but project organizers are delighted when our guys show up since all they have to do is tell them what needs to be done, show them the blueprints and they're off. They know the job will get done right the first time."

George Brian, the Habitat construction manager, was all smiles when the 423rd contingent arrived.

"Except where law requires, like electrical and mechanical areas, it's all done by volunteers," he said. "Some have never been to a site before. The American Air Force volunteers, of course, know what they're doing, so they can help those who don't."

In essence, he said, the engineers keep construction of the units on a professional level and can undo problems that may occur along the way. In return, the volunteer engineers benefit from the type of hands-on work they don't always get while on duty, plus the knowledge that what they're doing is a worthy cause.

"It gives us a sense of accomplishment," said MSgt Mike Christie, superintendent of civil engineer operations and lead on the volunteer crew. "To be able to see a product finished with our help and help the community at the same time is a great feeling. I can't think of too many better ways to interact with local British communities than this." *(TSgt G. A. Volb, 423rd Air Base Squadron Public Affairs)*

MSgt Mike Christie and TSgt Don Peterson, 423rd CEF, shore up trusses that will eventually support the roof. *(Photo by TSgt Guy Volb)*

CEs Named Airmen of the Year

Two civil engineers are among the Air Force's 12 Outstanding Airmen of the Year for 2000.

SMSgt Tim C. Bosch, 15th Civil Engineer Squadron, Hickam Air Force Base, Hawaii, and MSgt Rocky D. Dunlap, 62nd CES, McChord AFB, Wash., were selected from 48 nominees representing major commands, direct reporting units and Air Staff agencies in this year's awards.

"It's such an honor to be selected," said Bosch, who has been Hickam Fire Department's deputy fire chief since November 1999. "I'm very humbled and very proud."

Previously, as fire protection superintendent at Kadena Air Base, Japan, Bosch led a multi-agency task force in identifying an environmentally compliant solution for the closure of a live-fire training facility — a plan that reopened the facility and avoided $800,000 in temporary duty costs. Also at Kadena, he commanded crews to action when an F-15 burst into flames, saving a $40 million aircraft. He also championed emergency medical training with a Department of Defense hospital, resulting in 28 firefighters becoming nationally certified — 300 percent above the Air Force criteria.

"I have been fortunate to work and learn from two talented fire chiefs [at Hickam and Kadena], and to be surrounded by outstanding firefighters at both assignments," said Bosch.

MSgt Rocky D. Dunlap, chief of McChord's explosive ordnance disposal flight, was cited as the Air Force's premier explosive ordnance disposal expert — the one federal agencies ask for by name. He personally led a

presidential support EOD detail, and has provided EOD security for Vice President Gore. His performance so impressed the U.S. Secret Service, they assigned him to support a visit by the British Prime Minister. After a suspected terrorist was caught smuggling explosives into the United States from Canada, Dunlap identified the device for FBI and Alcohol, Tobacco and Firearms agents and provided information on its ties to a known terrorist cell, enabling federal authorities to move quickly to disrupt a major terrorist plot against millennium New Year celebrations.

The selectees were honored during the Air Force Association's national convention in September in Washington, D.C., and will serve as members of the AFA's Enlisted Advisory Council. (*Pacific Air Forces and Air Force Personnel Service News Services)*

Key Personnel Changes in the CE Community

Air Combat Command — Col Cornelius J. "Connie" Carmody has succeeded Col Frank J. Destadio as the Air Combat Command Civil Engineer, Langley Air Force Base, Va.

Colonel Carmody had served as the assistant Civil Engineer at ACC since May 1999. Prior to that, he was chief of the directorate's Programming Division.

Colonel Destadio retired in July. Prior to serving as ACC's Civil Engineer, he was The Civil Engineer, Headquarters Pacific Air Forces.

U.S. Air Force Academy — Col David O. Swint was promoted to the grade of brigadier general, and retired as Permanent Professor and Head, Department of Civil and Environmental Engineering, U.S. Air Force Academy on July 28. Maj Gen (ret.) Eugene A. Lupia presided over the ceremony, which was attended by many former faculty members and representatives from all the major commands. Colonel Swint had served 18 years as department head. His successor is Col Gregory E. Seely.

Air National Guard — Col Janice M. Stritzinger has succeeded Col Samuel G. Lundgren as the Air National Guard Civil Engineer, Andrews AFB, Md.

Colonel Stritzinger is formerly deputy chief, Environmental Division, Headquarters Air National Guard. Colonel Lundgren retired in July.

Air Force Civil Engineer Support Agency — Dennis Firman, former AFCESA executive director, is now chief of the Civil Engineering Construction Division at Headquarters Air Combat Command, Langley Air Force Base, Va. Firman had served as AFCESA's executive director since 1994. No replacement has been named yet.

Brigadier General Paul T. Hartung

Retired 1982, Died April 29, 2000

Brig Gen (ret.) Paul T. Hartung, USAF, of La Canada Flintridge, Calif., died April 29 at age 75. General Hartung was former Deputy Director for Engineering and Services and program manager for Israeli Air Base Construction, Office of the Deputy Chief of Staff for Logistics and Engineering, Headquarters U.S. Air Force.

General Hartung served in the U.S. Navy in the South Pacific during World War II. He returned to active duty in November 1951 after receiving his Air Force commission by direct appointment. His first assignment was as installations engineer at Eglin Air Force Base, Fla., followed by assignments with Third Air Force in England and the Air Force Ballistic Missile Division in Los Angeles, Calif., where he helped define facility requirements for the Atlas weapon system program.

During the Vietnam conflict, he served as a commander of the 823rd RED HORSE Squadron at Bien Hoa Air Base, Republic of Vietnam. In the early 1970s, he participated in facility expansion of the North American Air Defense Command Cheyenne Mountain Complex.

He later served as deputy director, then director, of the Air Force Civil Engineering Center, predecessor of today's Air Force Civil Engineer Support Agency. He moved with the center from Wright-Patterson AFB, Ohio, to Tyndall AFB, Fla., in 1972.

General Hartung served as the Deputy Chief of Staff for Civil Engineering, and then Engineering and Services, at Military Airlift Command from 1973 to 1978. He moved to Tel Aviv, Israel, in 1979 as the Department of Defense program manager for Israeli Air Base Construction. The general retired from active duty in September 1982.

CE Civilian Receives Award for Valor

An electrical flight chief with the Civil Engineer Division of the 77th Support Group, McClellan Air Force Base, Calif., saved a man's life recently and received the Air Force Civilian Award for Valor to recognize his bravery.

Kenneth L. Davis received the award from Gen Lester L. Lyles, commander, Air Force Materiel Command. The Air Force Civilian Award for Valor is a mirror of the military Airman's Medal, which recognizes those who voluntarily risk their individual safety beyond the call of duty.

When Davis responded to an electrical explosion in McClellan's commissary Oct. 25, 1999, John Callahan, a Sacramento Municipal Utility District electrician, approached Davis, asking him for help with a problem in the mechanical room.

Seeing the temporary wiring the weekend technician had installed, Callahan began evaluating what corrective action was required to return the system to normal operation. Davis, who was approximately 5 feet from Callahan, was looking at a piece of associated equipment when he heard an explosion and saw a bright flash of light.

"It was all reaction," said Davis. "Inside this room was a fire ball. When I first opened my eyes I couldn't see a thing, so I shut them again. All I could hear was him (Callahan) yelling, 'I'm on fire'. So I dropped to my knees and when I could see again, I made my way over to him."

Davis realized that the panel Callahan was working on had "flashed." He rushed to put out the flames

engulfing Callahan's shirt. As the room rapidly filled with dense black smoke, Davis put Callahan's arm over his shoulder and kicked open the mechanical room doors, dragging him to safety. Davis then directed several commissary personnel in the area to call 911 and bring water, ice and clean rags.

Davis' actions, based on years of training, sound common sense, and a desire to help a fallen comrade, culminated in a successful rescue.

"Davis' quick thinking and courage reflect the highest devotion to duty and are a great credit to him and the Air Force," said Davis' supervisor Jim Olsen, facility preservation and transfer branch chief. *(Robin Jackson, Sacramento Air Logistics Center Public Affairs)*

Training Program Receives National Award

The Air Force Civil Engineer Support Agency recently received three national-level interactive media awards for its computer-based hazardous materials training program.

The Absolute eXcellence In Electronic Media (AXIEM) award was presented to the agency July 25 for a four-CD training program it developed titled, *Hazardous Materials Technician Emergency Response Training*. The courseware is used to train and certify DoD hazardous materials emergency responders, and also by the Bureau of Alcohol, Tobacco and Fire Arms, the FBI and other federal agencies.

The AXIEM award is a national electronic media award presented for creative communication in television, video, radio, film, animation, the Web and interactive media. AFCESA's CD set received the top award, the Copper AXIEM, for training, interface design and graphics/logos.

Government agencies should have received a DoD version of the courseware when it was released last year. If additional copies are needed, e-mail requests to jim.podolske@ afcesa.af.mil, or bruce.grabbe@ afcesa.af.mil. *(TSgt Michael A. Ward, AFCESA Public Affairs)*

Coastal Cleanup

The 325th CES Environmental Flight, Tyndall AFB, Fla., organized a team of volunteers for the annual International Coastal Cleanup on Sept. 23. Tropical Storm Helene had passed through the area the day before, leaving plenty of debris on Tyndall's beach for volunteers to collect. Before the morning was over, more than 250 volunteers picked up more than 3,000 pounds of trash and debris.

Hundreds of thousands of volunteers in more than 90 countries participated in the event, removing debris from the shorelines, waterways and beaches of the world's lakes, rivers and oceans. *(Photo by MSgt Dale Hansen)*

2000 Colonel-Selects

The following civil engineer officers were recently selected for promotion to the rank of colonel. Congratulations to all on their dedication and achievement.

Benjamin Anderson
James S. Brackett*
Timothy K. Bridges
Larry W. Brittenham
Gregory W. Coker
Mark A. Correll*
Thurlow E. Crummett, Jr.
Raymond E. Dinsmore
Richard A. Fryer, Jr.
Timothy P. Gaffney
Gordon S. Green
William T. Greenough
Bobbie L. Griffin, Jr.*
James P. Holland
Dave C. Howe*
Drew D. Jeter*
Bryan L. Kuhlmann
Steven K. Lillemon
William P. Macon
Richard G. McClellan
John S. Medeiros
Leonard A. Patrick*
William R. Saunders
Andrew R. Scrafford
Kenneth P. Shelton
Charles P. Smiley
Cynthia G. Snyder
Nancy L. Speake
York D. Thorpe
Hal M. Tinsley
Linden J. Torchia
Josuelito Worrell
Steven W. Zander

*Below-the-Promotion Zone

Fired Up about Emergency Response

(Above) **48th CES firefighters take the vital signs of a fellow 48th Fighter Wing member with a mock gun shot wound received during a Local Surety Inspection in July.** ***(Below)*** **A 48th CES firefighter responds to a mock fire in a protective aircraft shelter during the Local Surety Inspection. The week-long exercise sharpens 48th FW emergency response actions.** ***(Photos by A1C Joanna E. Reihle)***

(Top left, bottom left) **Firefighters from the 48th Civil Engineer Squadron, Royal Air Force Lakenheath, U.K., assault a fire on a mock F-15 at Lakenheath's fire pit during a joint training exercise with the Suffolk Fire Brigade in August.** ***(Photos by SrA Tony R. Tolley)***